DOCUMENT RESUME

ED 336 837 EA 023 312

AUTHOR Rondinelli, Dennis A.; And Others
TITLE Planning Education Reforms in Developing Countries: The Contingency Approach. Duke Press Policy Studies Series.
REPORT NO ISBN-0-8223-0974-2
PUB DATE 90
NOTE 188p.
AVAILABLE FROM Duke University Press, 6697 College Station, Durham, NC 27708 ($15.91 prepaid; $2.00 postage and handling).
PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC08 Plus Postage.
DESCRIPTORS Administrative Organization; *Developing Nations; *Educational Change; Elementary Secondary Education; Foreign Countries; *Planning; *Program Implementation
IDENTIFIERS *Contingency Analysis; *Management Practices; World Bank

ABSTRACT

Focusing on education improvement programs in developing countries, this book offers a set of guidelines for applying contingency theory in planning such projects and for selecting appropriate management strategies to implement them. The success of people-centered development programs depends on planners' ability to tailor services to different groups' particular needs and changing people's behavior so that they may more effectively help themselves. The first chapter reviews experience with education improvement plans funded by international assistance organizations such as the World Bank, identifies education innovation characteristics, and traces their implications for selecting project management strategies. Chapter 2 reviews contingency theory, and chapter 3 describes an operational framework for using it to analyze the management requirements of a project and the management capacity of implementing agencies. The next four chapters thoroughly discuss the main elements of contingency analysis, including the environment, task innovation, cultural values, management structures, and organizational structures. The final chapter shows how planners can use the results of these analyses to develop management capacity in organizations that will carry out educational reforms and to modify project and program designs to increase the chances for success. (134 references) (MLH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED336837

Planning Education Reforms in Developing Countries

The Contingency Approach

EA023 312

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

S. Salemson

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Dennis A. Rondinelli, John Middleton, and Adriaan M. Verspoor

BEST COPY AVAILABLE

Planning Education Reforms in Developing Countries

The Contingency Approach

Dennis A. Rondinelli,
John Middleton, and
Adriaan M. Verspoor

Duke Press Policy Studies

Duke University Press
Durham and London 1990

© 1990 Duke University Press
All rights reserved
Printed in the United States of America
on acid-free paper ∞
Library of Congress Cataloging-in-Publication Data
appear on the last page of this book.

CONTENTS

Acknowledgments vii

ONE: Managing Education Reform 1

The Challenge of Education Reform 3
The Scope of Education Reform in International Development Projects 8
Problems of Implementing Education Reforms 10
Improving the Implementation of Education Reforms 16

TWO: Using Contingency Analysis to Plan Education Reforms 19

Contingency Theory and Project Design 23
A Contingency Analysis Framework for Project and Program Design 25
Issues in Designing Education Reform Programs and Projects 27
Summary 31

THREE: An Operational Model for Contingency Analysis 33

Contingency Analysis: An Overview 34
Summary 50

FOUR: Assessing Environmental Uncertainty, Innovation, and Values 53

Environmental Uncertainty 53
Complexity and Stability: Indicators of Environmental Uncertainty 66
Predictability and Demandingness: Indicators of Innovation 68
Summary 71

FIVE: Selecting a Management Strategy 73

Mechanistic Management Strategy 74
Open-Mechanistic Management Strategy 77

Adaptive Management Strategy 78
Professional-Adaptive Management Strategy 82
Summary 84

SIX: Assessing Management Capacity and Needs 87

Planning and Decision-Making 89
Leadership and Authority 93
Communication 95
Coordination 100
Control 105
Monitoring and Evaluation 108
Staffing 110
Incentives 113
Summary 116

SEVEN: Comparing Organizational Structures 119

Centralization and Decentralization in Education Systems 120
Alternative Organizational Structures 131
Structural Hybrids 139
Summary 143

EIGHT: Formulating Implementation Action Plans 145

Organization Development 147
Changing Project Design 156
Approaches to Organizational Change and Project Redesign 159
Matching Level of Innovation with Management Capacity 164
Summary 168

Reference List 169

About the Authors 177

Index 179

ACKNOWLEDGMENTS

THIS BOOK ORIGINATED from the concerns of many people within the World Bank about the effectiveness with which its education projects are being implemented in developing countries. Over the course of two years the authors collaborated in exploring the general problems of development project management and in analyzing the experience with education improvement projects funded by international organizations. These studies yielded discussion papers that we used in a series of seminars for World Bank staff. The seminars gave us valuable information about and insights into the problems that project officers face in implementing education reform programs. They allowed us to test and revise our ideas about how to analyze, plan, and manage development projects more effectively.

Many World Bank staff helped to develop the ideas in this book and suggested how they could be applied in practice. Our thanks go especially to Jacomina de Regt and Ernesto Schiefelbein. Colleagues who participated in the seminars, and others outside of the World Bank, provided valuable comments and advice. William M. Rivera, Marcus Ingle, and Derick Brinkerhoff read earlier drafts and gave us particularly useful suggestions. We also appreciate the confidence and support of Richard Rowson and the assistance of his staff at Duke University Press.

Although the research on which this book is based was carried out initially for the World Bank, the findings, interpretations, and conclusions are those of the authors. They do not necessarily represent official policy of the World Bank, and they should not be attributed to the World Bank or its affiliated organizations.

CHAPTER ONE

Managing Education Reform

EXPERIENCED PLANNERS and administrators know that there is no single correct way to manage all activities and organizations. The best management strategy is one that produces the best results under existing circumstances and that helps managers to anticipate and adjust to change. But in many organizations the pressures to reduce activities to standard operating procedures prevent administrators from applying that knowledge. Over time standard procedures become the only acceptable way of working. Bureaucrats criticize as "bad management" any attempts to deviate from an organization's rules and regulations.

Standard operating procedures allow large organizations to achieve high levels of productivity and efficiency, especially when work is routine and repetitive or when the organization must deliver a limited number of goods and services to a large number of clients. But there is a tendency in many large organizations for operating procedures to become ends in themselves. As a result, they become rigid and inflexible. They inhibit managers from responding to changes in the organization's environment or to the varied needs of the people they are supposed to be serving.

Under pressure to keep operations efficient, administrators often forget another commonly known principle: that managing innovation and change usually requires different strategies, management processes, and organizational arrangements than performing "steady-state" functions. Management processes that are quite efficient for providing routine and repetitive services are usually inappropriate for dealing with rapidly changing and unpredictable circumstances or with new problems for which there are no strong precedents. Standard operating procedures are usually inadequate for providing services that must be tailored to the needs of different groups of clients. In these cases an organization's staff may follow standard procedures faithfully, but the activities are implemented ineffectively and the results are unsatisfactory.

In this book we describe a method for analyzing and selecting management strategies for projects and programs that seek to promote innovation and change in organizations that, for the most part, provide "routine"

services to large numbers of people. We contend that administrators cannot successfully use the same management strategies to introduce new services, or new ways of providing services, as they use to provide well-established, routine, and repetitive ones (Ansoff, 1965). Changing the way services are organized and delivered is complex. Administrators must use appropriate management processes and organizational arrangements. In order to illustrate more clearly the differences between managing innovative and steady-state tasks, we focus on education improvement programs and projects in developing countries.

The method that we prescribe for identifying the most appropriate management strategies for education improvement projects in developing countries—contingency analysis—is also well known to many experienced planners and administrators. Theories of contingency management appear frequently in administrative science literature (Lawrence and Lorsch, 1967; 1969). Private corporations in North America and Europe use them extensively. But the theories and principles of contingency planning and management are not used as frequently in the public sector. Few ministries of education in developing countries, or international organizations that support their work, consciously use contingency analysis to design and implement innovative education projects (Rondinelli, 1987). Aside from the fact that few administrators in developing countries are familiar with theories of management other than the conventional principles of bureaucracy, the failure to use contingency theory in analyzing and designing education reform projects is due to the lack of easily applied operational guidelines.

This book offers a set of guidelines for applying contingency theory in planning education reform projects and for selecting appropriate management strategies for their implementation. The education sector is an especially appropriate one in which to explore the use of contingency analysis. Education is crucial for economic and social progress in less developed countries. But what is equally important for our purposes is that education improvement projects share similar characteristics with many other development activities such as agricultural and rural development, health care, population planning, and urban services provision (Rondinelli, 1983a). All of these are "people-centered" development programs. Their success depends on the ability of planners and administrators to tailor services to the particular needs of different groups of people and on changing people's behavior so that they can more effectively help themselves (Korten, 1984). To implement "people-centered" projects successfully, planners must provide the resources with which people can develop their own skills and capabilities. Although we focus our discussion in this book on education, our guidelines for applying contingency

analysis are relevant for planning other kinds of development programs as well.

In formulating a framework for contingency analysis, we draw from the experience of the World Bank—an international organization that has invested heavily in improving education in developing countries—to identify the problems and challenges facing planners and managers. We believe that the World Bank's experience reflects that of other international organizations involved in improving education. It also reflects the challenges facing education planners and administrators in most developing countries. We supplement lessons from the World Bank's experience with conclusions from studies of education reform programs sponsored by other international assistance organizations.

The major assumption in contingency theory is that the level of innovation in project tasks and the degree of uncertainty in the environment in which they must be carried out are the primary determinants of an appropriate management strategy. We believe that education projects, and especially those promoting innovation and change, can be implemented more successfully when planners select a management strategy that reduces the gap between the project's *management requirements* and the *managerial capacity* of education institutions to adopt innovations and to cope with environmental turbulence.

In this first chapter we review experience with education improvement programs funded by international assistance organizations such as the World Bank, identify the characteristics of education innovation, and trace their implications for selecting project management strategies. In chapter 2 we offer an overview of contingency theory. In chapter 3 we describe an operational framework for using contingency theory to analyze the management requirements of a project and the management capacity of implementing agencies. In chapters 4, 5, 6, and 7 we provide a more thorough discussion of the main elements of contingency analysis: the environment, task innovation, cultural values, management processes, and organizational structures. In the final chapter we show how planners can use the results of these analyses to develop management capacity in organizations that will carry out education reforms and to modify project and program designs in ways that will increase the chances for successful implementation.

The Challenge of Education Reform

Expanding school systems and improving the quality of education are important goals of governments in developing countries and have been since the 1960s. Development theorists argue that improving education is

a primary means of building human resources, which Harbison (1973: 3) calls the "ultimate basis for the wealth of nations," more crucial to long-term sustainable economic growth than capital, natural, and material resources. International development organizations such as the World Bank have invested billions of dollars in strengthening education in developing countries, but the impacts of these investments are often undermined by developing countries' weak capacity to manage and implement changes.

The gap between proposed reforms and the ability to implement them in developing countries is widening as the projects financed by international assistance organizations support increasingly ambitious educational innovations. The World Bank's strategy, for example, has changed significantly since the 1960s. Initially, the World Bank tried to expand education enrollments in developing countries primarily by financing the construction of school buildings. But beginning in the 1970s the bank and other international assistance organizations placed far greater emphasis on improving the quality of education and increasing student achievement.

The initial emphasis on school construction and enrollment expansion is understandable in view of national leaders' desire to modernize traditional education systems or replace colonial ones quickly. During the 1960s and 1970s national development plans gave high priority to expanding education. For example, in 1961 African Ministers of Education meeting in Addis Ababa under the auspices of the United Nations Economic, Scientific, and Cultural Organization (UNESCO) agreed upon a resolution pledging to achieve universal, free, and compulsory primary education in all African countries within twenty years (UNESCO, 1961). In the post-colonial era national leaders saw education as a primary means of creating an integrated and unified nation-state. They thought that education was the best way of spreading the national language and of fostering national identity in countries torn apart by ethnic, religious, or territorial conflicts. They looked to education as an efficient instrument for instilling loyalty and patriotism and for promoting the political ideologies that brought national independence. National plans emphasized the importance of education for creating a skilled and professional work force, for stimulating national economic growth, and for preparing civil servants and business leaders to replace colonial rulers (Fiala and Lanford, 1987). In newly independent nations access to education also provided access to positions of power, prestige, and economic security. Schooling remained an important criterion for further education, employment, and social advancement in most developing nations (Samoff, 1987).

Political leaders' concern with strengthening the nation-state, and the increasing demand for education by larger numbers of people seeking

access to the benefits of economic growth, combined to create strong pressures for expanding school systems. Reviewing the role of education in African development during the postcolonial era, Samoff (1987: 334) points out that "national leaders needed to provide visible and rapid benefits to the populace. Although they might lack trained teachers, curriculum materials, and even stationery, there could be new schools nearly everywhere in a relatively short period, especially where local communities were willing to donate materials and labor." Even in remote rural areas central government agencies could construct schools faster than they could provide many other social services and facilities. "Hence rapid expansion of schooling was commonly understood by both the leaders and the mass public as a central element in the legitimization of the new government of the structure of the state itself."

In most developing countries education expansion policies were quite successful. School enrollments grew by more than 6 percent a year during the early 1960s, by more than 4 percent a year in the late 1960s, and by more than 3.5 percent a year during the 1970s (Adams and Kruppenbach, 1987). Only about 37 percent of primary-school-aged children in all developing countries were enrolled in school in 1950; but by 1970, 58 percent were enrolled, and, by 1985, about 72 percent were in school. Secondary school enrollments in developing countries increased from about 5 percent in 1950 to about 13 percent in 1985 (Fuller, 1986).

Governments in most African countries launched universal primary education campaigns during the 1960s and 1970s. Although some of the campaigns fell short of their goals and others were abandoned, enrollment rates among six to eleven year olds still increased from 40 percent in 1965 to about 51 percent by 1975 (Bray, 1981). Some developing countries gave special emphasis to education and were quite successful. Enrollments in those countries rose more rapidly. For example, in Costa Rica, where education was a high priority, net enrollment rates grew from about 66 percent in 1951 to 98 percent in 1981 (Rojas, 1984). The number of elementary schools increased from about 1,175 in 1951 to 2,856 in 1971 and to about 3,500 in 1981. The number of secondary schools increased from 37 in 1951 to 261 in 1981.

By the late 1960s, however, it became clear to education officials and to experts in international assistance organizations that expansion of school facilities and enrollments alone would not raise the *quality* of education in developing countries. Indeed, the rapid rates of expansion during the 1960s may have adversely affected educational quality during the 1970s, especially in the poorest countries. One reason was that resources available for education leveled off or declined with school expansion. Government expenditures for education in developing countries declined during the 1970s from 21 to 18 percent of GNP. The average share of government

budgets for education fell from 16 to 11 percent (Fuller, 1986). UNESCO's survey of twenty-eight developing countries indicated that between 1970 and 1979, twenty-two countries either decreased their total public expenditures for education or provided no significant increases (Coombs, 1985).

Moreover, programs for expanding facilities and raising enrollments alone had little positive impact on student achievement and school quality during the 1970s. Fuller (1986) points out that only 10 percent of Third World students at the age of fourteen were literate in their native language. Retention rates in many countries were low and grade repetition rates were high. For example, only about 25 percent of all children in Bangladesh completed the fourth grade. In Peru 37 percent of the children repeated the first grade (Fuller, 1986). In Thailand, Iran, Chile, and India half of the children enrolled in the first grade dropped out by the fourth grade. In twenty-five sub-Saharan countries for which data are available, on average only about 65 percent of the children who enrolled in the first grade in 1970 remained in school until the fourth grade. Dropout rates in the poorest countries such as Madagascar and Chad reached 70 percent (Bray, 1981). Rapid expansion of school facilities and enrollments and declining expenditure per student resulted in lower educational quality for students in many developing countries. The gap between the quality of education in richer and poorer countries widened further as rapid expansion in the number of students entering schools reduced the share of educational materials for each student and increased the number of students per skilled teacher (Jamison, et al., 1981).

For all of these reasons international assistance organizations began during the 1970s and 1980s to give higher priority to improving the *quality* of education rather than simply expanding school systems. The projects funded by the World Bank during the 1970s and 1980s were part of its strategy for alleviating poverty, promoting social equity, and stimulating economic growth. Innovation and change were at the core of these education projects. The World Bank sought to increase the access of the poor to education services, develop science teaching, improve the relevance of education to national needs, and build national capacity for management and research within ministries of education (World Bank, 1980).

From the mid-1970s the World Bank began to broaden its lending. It introduced innovative curriculums and educational enrichment programs to meet the needs of more than eighty developing countries. "No one familiar with the prevailing conditions of education and development in the developing world of the early 1970s," Coombs (1985: 26) observes, "could seriously challenge the logic and rightness of these new policy directions." For international assistance organizations and governments in developing countries, Coombs points out, "a huge problem remained.

however: how to translate these new policies into action." This problem has yet to be solved. It set officials in both international organizations and developing country governments searching for new ways of implementing education improvement projects.

The increasing complexity and seriousness of education problems in developing countries also created pressures to find new ways of managing education reform. For example, after nearly two decades of rapid expansion of school systems in Latin America, serious deficiencies in the quality and coverage of education services still exist. In Brazil nearly half of all first graders and as many as 30 percent of primary school students are repeaters (World Bank, 1986a). Teachers' salaries are extremely low, making it difficult to attract and retain skilled people with strong qualifications. The quality of education in rural areas throughout Latin America is far lower than in urban areas, exacerbating inequalities and reinforcing social and economic disparities among regions within countries.

Although Costa Rica's education system is relatively effective compared to others in Central and South America, its shortcomings and limitations illustrate the problems shared by less progressive countries. Costa Rica has achieved almost full enrollment at the primary level, with about 68 percent of the students completing six years of schooling. Two-thirds of these students complete grade nine, and about 60 percent finish secondary school. Compared to other Latin American countries, equity and distribution patterns are favorable, although in many rural areas basic education is still provided by multigrade one-teacher schools (*escuelas unidocentes*). Female participation rates are relatively high with more than 50 percent enrolled in most levels of education. Staffing ratios are about thirty-two to one in grades one through nine and twenty to one in secondary and diversified schools (Method, San Giovanni, and Solis, 1985).

Despite such impressive progress, public schools in Costa Rica suffer from serious problems. Many schools, and especially the *escuelas unidocentes*, lack adequate numbers of textbooks, teaching materials, and supplies. Many of the school facilities are not adequately maintained. Few resources are available for enhancement programs, such as foreign languages, music, sports, or cultural subjects (Method, San Giovanni, and Solis, 1985). Less than 5 percent of the public education budget is in nonsalary discretionary funds that the Ministry of Public Education can devote to improving quality (Rondinelli and Zurcher, 1987).

Because these same complex problems continue to plague other developing countries, international assistance organizations began to design even more complex and more innovative education reform projects during the 1970s and 1980s. But the uncertain social, economic, and political conditions in many developing nations made these projects difficult to

manage and complete successfully. In Africa, for example, many of the education reforms tried during the 1970s either did not achieve their objectives or failed. Projects for using educational television to supplement primary education in Niger and the Ivory Coast both experienced technical problems and serious cost overruns. The program in the Ivory Coast was eventually abandoned because of these problems and because of opposition by teachers. A large-scale reform in Zambia that would have made substantial changes in the colonial system of education could not be implemented because it was not acceptable to the teaching profession and some powerful political factions. Universal primary education programs in Swaziland were abandoned because of lack of commitment from the government and the education bureaucracy (Bray, 1981).

Many of these problems arose from the difficulties of managing complex innovations. In his review of seventeen education projects funded by the World Bank, Middleton (1986) found that a high degree of innovation and uncertainty in government education policies increased the complexity of projects and their management requirements. Verspoor's (1988) analysis of twenty-one bank projects found that successful implementation depended on designing a program that introduced innovations at a rate appropriate for environmental conditions and on supporting them with effective organization development programs and staff training.

These studies, and other research on the management of development projects (Rondinelli, 1983a, 1986), demonstrated clearly that education reforms must be designed so that management strategies are appropriate to the degree of uncertainty in the environment and to the degree of innovation called for in the projects. Innovative tasks that are carried out in rapidly changing environments must be managed differently than routine tasks in stable environments.

The Scope of Education Reform in International Development Projects

When international assistance organizations began in the late 1970s and early 1980s to promote education reform, their projects required significant changes in the structure and financing of education. The complex projects prescribed by international organizations attempted to increase the number of teachers, improve their qualifications and skills, and raise their pay. They sought to generate more revenues by increasing fees and tuitions, inducing community groups to construct schools, and encouraging private sector participation in education. They tried to improve curricula, increase the effectiveness of teachers, upgrade instructional materials, and use mass media and distance learning. Projects were

designed to increase training and improve the skills of young people and adults working in the urban informal sector and in agriculture.

Before 1970 less than half of the education projects financed by the World Bank included components for planned changes in education systems. After 1970 more than 80 percent had components promoting changes and reforms. In the 282 projects supported by the World Bank between 1963 and 1984, over 60 percent of the total cost—nearly $6.4 billion—was earmarked for about 300 educational change components (Verspoor, 1988).

The World Bank sought three types of changes. First, it supported comprehensive projects aimed at promoting system-wide reform, for example, by introducing a new nationwide primary education curriculum. Second, it financed enrichment programs to improve the quality of instruction by providing more or better resources, such as new textbooks or radio training curricula. Third, it funded projects for improving the quality of existing curricula by introducing a new subject, such as agriculture, or improving an existing one, such as science at the secondary level.

Most of these innovative education projects had ambitious objectives. They were usually large-scale reforms prescribing changes that deviated widely from current education practices. Nearly 38 percent of the components in World Bank education projects sought large-scale curriculum reform, and 60 percent of those large-scale projects prescribed three or four different changes. Moreover, many of the changes proposed in World Bank-sponsored education projects were untested. Nearly half of the large-scale curriculum reform projects, for example, contained experimental components (Verspoor, 1988).

Many of the education reform projects carried out by United Nations agencies—primarily the United Nations Development Programme (UNDP), the United Nations Educational, Scientific, and Cultural Organization (UNESCO), and the United Nations Children's Fund (UNICEF)—also proposed large-scale, complex, and ambitious changes (Havelock and Huberman, 1977). The key actors in most of these innovations were foreign advisers hired by international assistance organizations, who were seconded to national or provincial education offices. Others were political leaders or high-level officials from the ministries of education or planning and influential educational professionals, such as the heads of universities or education departments who traveled frequently outside the country.

International assistance organizations were concerned with all levels of education and many types of training, but the World Bank gradually shifted away from its earlier emphasis on secondary education and advocated basic improvements at the primary level. Examples of the wide

range of educational changes that the World Bank supported in developing countries include improving the administration and curriculum of training programs for rural youth clubs in Benin; creating a nationwide nonformal agricultural training system in El Salvador; increasing the access of the rural population to primary and secondary schools through a curriculum attuned to the needs of rural households in Ethiopia; and improving the quality of primary education in Bangladesh, especially for girls from the poorest rural households. The World Bank also funded projects for restructuring entire education systems. In Haiti, for example, it supported a project for developing and introducing new curricula and teaching methods and for providing training and incentives to teachers. In Pakistan World Bank projects introduced programs for multigrade teaching in rural schools, recruiting female teachers, and changing the organization of supervision and support to rural schools (World Bank, 1980).

Problems of Implementing Education Reforms

Projects promoting education reforms posed major management challenges. Havelock and Huberman (1977: 15), in a review of education reform projects assisted by the United Nations during the 1970s, concisely summarize their characteristics. "In these innovations there is generally a very rapid movement through the problem-solving cycle, from the initial assessment of the need for change, to the design of a solution, and the implementation of that solution. Implementation is rapid and widespread, and it is effected through existing administrative machinery rather than through informal or indirect channels." They point out that unlike World Bank projects, those sponsored by United Nations agencies typically had no experimental or pilot phase, "which can be accounted for by the perceived urgency for the needs, but which often increases the number and seriousness of the problems encountered during implementation."

Promoting change is difficult under any circumstances, but it is especially challenging in developing countries with uncertain and unstable economic, social, and political conditions. Most developing countries lack the physical infrastructure and experienced, skilled professionals needed to assure successful results. Many lack strong institutions and organizations that are needed to carry out changes. They have few administrators with the ability to mobilize financial and human resources in a timely fashion. Most countries do not have planning processes that allow planners and administrators to learn from past experience (Havelock and Huberman, 1977).

Many of the large-scale educational reforms sponsored by the United

Nations during the 1970s ran into serious implementation problems because they were analyzed and planned superficially. Havelock and Huberman (1977) conclude from their review of nineteen UN projects that considerable time, energy, and resources were wasted during implementation dealing with problems that resulted from superficial analysis. Most of the projects were seriously delayed or diverted from their innovative objectives. In surveys of eighty-one technical advisers and national project directors involved in education reform projects, Havelock and Huberman found five major sets of implementation problems. These included (1) problems in managing the innovation process, (2) problems arising from the personalities and behavior of those involved in project implementation, (3) inadequate resources and organizational capacities, (4) financial problems, and (5) opposition from key groups in society to the proposed reforms.

Causes of Implementation Problems

The difficulties of implementing education reforms in developing countries have arisen for all of these reasons and for others as well. Our review of the World Bank's experience suggests the following causes of ineffective implementation.

Complexity of Reform Proposals. Implementation problems arose in many of the education projects funded by the World Bank because its staff combined a number of more-or-less unrelated tasks to create what they considered to be financially viable loans. However, these complex projects placed great strains on the management capacity of education institutions in developing countries.

The World Bank's second education project in the Philippines, for example, epitomized the "smorgasbord" or "Christmas tree" projects that international assistance organizations funded frequently during the 1970s and 1980s (Middleton, 1985b). It included in a single project components for science teacher training, experimental agricultural high schools, regional agricultural colleges, community development schools, agricultural radio stations, technical training institutes, and regional manpower training centers. Many of these components represented new forms of education in the Philippines. Not surprisingly, the project was quickly bogged down in administrative problems. The project was completed fifteen months late and exceeded its budget by 40 percent, but only after most of the components were scaled back and revised. The experimental agricultural high schools met with considerable public resistance because they were intended to offer a terminal degree. The curriculum had to be revised to permit students to prepare for higher education. Enrollments were low and dropouts were high in technical higher educa-

tion. Coordinating boards set up to link technical education with industry failed to function. The project proved to be too complex and too innovative for existing institutions to manage.

Unpredictability of Education Reforms. Difficulties in implementing innovative education projects also arise because the results of large-scale reforms are not always predictable in either more or less developed countries (Adams and Chen, 1981). Many factors indirectly influence student achievement, including the quality of preschool development, the health and nutritional status of children and their cognitive growth; parents' literacy and endorsement of schooling; school quality, especially material inputs, teacher quality, teaching practices, and classroom organization; and school management and structure. Student achievement is also influenced by a variety of social and economic factors: demand for child labor, the opportunity costs of attending school, and students' prospects for bettering their economic and social conditions by graduating from school (Fuller, 1986).

Moreover, one cannot simply assume that interventions tested in Western countries will have the same effects in less developed countries, where environments are less certain and management capacity is weak. Fuller and his associates (1986: 17) report that "findings from research on achievement and economic effects of school investments within industrial nations should not be generalized to developing countries, nor even applied to all historical periods within any country." Other studies have found significant differences among developing nations in the relationships between school attainment and quality and family background, teacher training, and physical quality of the schoolroom (Heyneman and White, 1986; Heyneman, Jamison, and Montenegro, 1984). "There is no such thing as a general definition of educational quality," Beeby (1986: 37) concluded, "since the concept of quality depends on one's concept of the ultimate purpose and objectives of education. This varies from country to country, from group to group, and even among individuals." He notes that quantitative changes are usually easy to discern and measure, but that "there are frequently strong differences of opinion on what constitutes improvement in quality."

Inappropriate Management Strategies. One of the major lessons of experience with education reform in developing countries is that projects seeking to promote change usually require different management strategies than those needed for administering an existing school system (Verspoor, 1988). One reason is that projects promoting educational change must be concerned not only with the substance of innovation—new curricula, new ways of teaching, new methods of service delivery—but also

with the complex process of introducing and institutionalizing change. Innovation requires changes in the behavior of many people in the education system: students, parents, teachers, inspectors, supervisors, administrators, and specialists. It also requires different agencies engaged in a variety of educational tasks to coordinate their activities. Innovation involves a long process of (1) creating awareness or perception that changes are needed; (2) generating knowledge and information about, and interest in, alternative ways of accomplishing educational goals; (3) assessing and testing proposed changes; (4) disseminating new ideas, methods, or practices by early advocates of innovation; (5) promoting widespread acceptance and legitimization of change; and (6) adapting and institutionalizing the changes (Zaltman, Duncan, and Holbek, 1973).

Difficulties in implementing education reforms also arise from the varied nature of the tasks usually included in reform proposals. Different management strategies may be required for tasks promoting different amounts of change within a single project. In this situation project managers must often use traditional management practices that are inadequate for performing complex and innovative tasks.

The heavy investment of financial and technical resources by international assistance organizations in education reform projects usually provides essential inputs that are difficult for governments in developing countries to mobilize internally. Foreign experts can propose solutions to education problems that represent the ideas of people within the country who do not have access to high-level government officials. They can suggest alternatives that their experience tells them have worked effectively in other places. They can stimulate the thinking of government officials and education professionals about the nature and characteristics of their education problems. Technical advisers can often mobilize sorely needed external resources. But foreign experts can also create problems. Havelock and Huberman (1977) found that in United Nations-sponsored projects, the strong role played by external advisers in assessing and interpreting education needs often led to projects that were of high priority to international organizations, but which the recipient country did not really want. Moreover, there was often some "disinvestment" by national governments when external advisers or experts took the lead in designing and implementing the projects. Sometimes local education professionals resented foreign experts who were invited to do jobs that they were supposed to be doing.

Failure to Focus on School Level Changes. Although many education projects in developing countries provided the financial resources to adopt changes, few projects gave serious attention to how changes would be implemented in the classroom. Between 1960 and 1984 the World Bank

funded supervisory and pedagogical support to teachers in only 12 percent of its projects (Verspoor, 1988). This approach reflects what Ernest House (1981) calls the "technocratic perspective" on educational reform.

Studies suggest, however, that the adoption of innovations in the classroom by individual teachers is a crucial element in implementing education reforms and in sustaining improvements. Many of the studies indicate that the effectiveness of education depends heavily if not primarily on factors such as strong local school leaders who give attention to the quality of instruction; a well understood instructional focus; an orderly and safe environment for teaching and learning; strong expectations among teachers, students, and parents that students will obtain at least minimum mastery of school subjects; and use of student achievement measures as the basis for program evaluation (Edmonds, 1982). Purkey and Smith (1983) found that the most effective schools are those in which there is: (1) strong leadership and autonomy in school site management; (2) strong instructional leadership by the school principal; (3) teaching staff stability and continuity; (4) a well-articulated and organized curriculum of instruction; (5) a well-organized school-wide staff development program related to the school's instructional program; (6) a strong program for providing information to and eliciting the support of parents concerning the school's goals and programs; (7) programs for school-wide recognition of academic success; (8) effective use of time for academic subjects rather than for nonacademic activities; and (9) strong support for school activities and programs from the school district.

Cohn and Rossmiller (1987: 394) conclude that "research on effective schools draws attention to the uniqueness of the individual school as a social system, and this uniqueness must be recognized and respected when formulating educational policy and planning for its implementation." They also note the critical role of teachers and local administrators in making decisions that affect student achievement. "School administrators and teachers must make a virtually endless series of day-to-day and even minute-to-minute decisions concerning how best to use the resources available to stimulate, encourage, and reward the learning of students." They point out that "it is important that national policies concerning education establish the appropriate parameters for school and classroom decisions but also that they provide sufficient leeway for those decisions that can best be made at the school and classroom level." The findings of this research on educational change, however, have not been effectively incorporated into the design of education reform projects in developing countries (Fuller, 1986).

Failure to Assess the Capacity of Organizations to Manage Innovation. Many of the problems with implementing innovative education

projects arise from the fact that neither international assistance organizations nor most governments in developing countries pay a great deal of attention to assessing the capacity of education institutions to adopt changes. The World Bank's (1971) first "Education Sector Working Paper" emphasized the importance of building the capacity of education ministries to manage projects more effectively. Education sector policy papers prepared in 1974 and 1980 reiterated the need to strengthen implementation capacity. But Noor (1984) found that the World Bank's assistance for strengthening educational administration was limited in scope and narrow in focus. About 60 percent of the bank's loans for this purpose went to creating or strengthening planning units in ministries of education. Relatively little of the money was spent on creating or strengthening supervision systems, establishing permanent capacity to develop curricula and educational materials, or for testing and measuring student achievement.

The problems of implementation are complicated by the fact that what is innovative in one country or agency may be less so for others. Indeed, much of what is considered to be innovative in internationally funded education projects simply transfers already well known technology. The innovative aspect of the project is in transferring the technology to places where it has not been tried before. Havelock and Huberman (1977: 124) found in their review of education reforms funded by the United Nations, for example, that "none of the innovations reviewed here—rural education programs, educational TV and radio projects, functional literacy, vocational training, teacher training, multipurpose centers, curriculum development projects—is 'original' in the sense of not existing elsewhere either before or at the same time as the innovation being planned. These experiments are, however, new or original in the setting in which they are being introduced."

The major problem that international organizations and national governments must cope with, therefore, is not *invention*, but *adaptation* and *institutionalization*. These are primarily management rather than technical problems. But a management strategy for education reform that works in one place may not work well in another. It may not work in different projects in the same country if different agencies are involved, and it may not work in the same agencies for projects or components with different levels of innovation.

Characteristics of Education Reforms

In brief, evaluations of international assistance organizations' projects promoting innovation and change in the education systems of developing countries suggest that they are far more complex, have substantially different characteristics, and require different methods of planning and management than traditional school construction projects (Middleton,

1986). Among the characteristics of projects promoting innovation and change that make them more difficult to implement successfully are these:

1. There is greater uncertainty about the nature of education problems, the conditions under which projects must be carried out, and the most appropriate interventions for achieving educational improvements.

2. Less is known about appropriate solutions to education problems. These projects often deal with complex, diverse, and rapidly changing conditions. The effectiveness of solutions depends on their "fit" with the sociocultural environment in which they are applied, and their responsiveness to beneficiaries with widely varying characteristics and needs.

3. These projects are "people-centered" activities. They depend heavily for their success on the values, attitudes, and behavior of intended beneficiaries and on their effective participation in project design and management.

4. The risks and difficulties of education reform are high because projects promoting change and innovation must often be implemented through bureaucratically structured education institutions that have weak administrative capacity.

5. It is more difficult to measure the impact of innovations and changes quantitatively, precisely, and directly.

In their review of education improvement projects funded by the United Nations, Havelock and Huberman (1977: 19) found that all of the innovations encountered serious implementation problems. "Our findings paint a rather dismal picture of international and national efforts to innovate." They conclude that "the practice of innovating needs drastic improvement."

Improving the Implementation of Education Reforms

Education experts in both international organizations and governments in developing countries know that weak or inappropriate management strategies undermine the success of development projects, not only in the education sector but in other sectors as well. Evaluations carried out by the World Bank (1983b: 27) found that the majority of the projects it funded faced significant cost overruns or serious completion delays, due primarily to "ineffective management." These problems arose from inadequate institutional development, lack of strong support for the project by the government, inability to recruit and retain qualified staff, inappropriate management processes, inadequate coordination, and insufficient supervision. "All or some of these factors affected the majority of projects with less than satisfactory outcomes, often resulting in reductions in project scope and benefit streams," World Bank evaluators point out.

"Bank staff and Borrower representatives were sometimes slow to react to such problems and failed to focus on important implementation issues." Problems in implementing education projects arose from a combination of inappropriate designs and ineffective management.

In almost all education projects funded by international organizations, their staff and government counterparts were professional education experts who knew intimately the problems of improving education. Why, then, has the implementation of these projects so frequently been plagued by problems? The answer to this question lies primarily in the process by which projects are planned and carried out. Conventional processes of project design attempt to create a comprehensive blueprint for action, to which managers are expected to adhere and deviations from which are often defined as bad management. Although such a blueprint approach may be appropriate for physical construction and routine service delivery improvement projects, a comprehensive and detailed "blueprint" is not necessarily appropriate for managing innovative education reforms.

Projects designed to change education systems require a different form of planning. It is usually difficult for planners to formulate a detailed prospectus for innovative projects to which managers can faithfully adhere. Any project design should give some description of objectives, size, scale, location, timing, the technical package, cost estimates, and a desired implementation schedule (Baum and Tolbert, 1985). But for innovative projects planners can only suggest an appropriate management strategy and leave tactical details of implementation to those who will be managing them.

Role of Contingency Analysis in Education Reforms

In this book we describe a contingency theory of analysis that seeks to identify the appropriate fit between project tasks and the environment in which they will be carried out on the one hand and organizational structure, management processes, and the value orientations of staff of implementing agencies on the other. Contingency analysis recognizes that highly innovative projects cannot usually be planned in great detail. The level of detail in which an education project can be designed prior to approval will depend on the complexity of the tasks involved, the degree of innovation and change that will be required, the degree of environmental stability, the level of existing knowledge about the needs and behavior patterns of beneficiaries, and the level of management capacity in the organization that will implement the project.

Contingency theory recognizes that each country's socioeconomic environment is different and that adjustments in tasks, organizational structure, and management processes must evolve incrementally from learning and experimentation. It views trial and error as a common and

legitimate form of learning. Contingency theory recognizes that innovative projects require a more adaptive management strategy than do routine construction or service delivery projects. A contingency approach attempts to join learning with action to move incrementally toward effective and efficient implementation, based on knowledge and experience gained through interaction with participants and beneficiaries (Rondinelli, 1983a; 1983b). In chapter 2 we discuss the characteristics of contingency analysis in more detail.

CHAPTER TWO

Using Contingency Analysis to Plan Education Reforms

INTERNATIONAL ASSISTANCE organizations and education ministries in developing countries give relatively little attention to the most critical aspect of project design: the capacity of implementing agencies to manage innovation. The management aspects of education projects are crucial not only because innovation and change require special managerial capabilities and processes, but also because the level of management capacity in ministries of education in many developing countries is low. An assessment of education and training needs in Africa, for example, concluded that the "capacity of the ministries to lead and manage the education systems was deteriorating, ironically enough because of management decisions on the allocation of resources to the administration. The relatively small but strategic inputs required to make administration more efficient, and in turn render the school system more accountable and efficient, are not being made" (Auerhan et al., 1985: 6). The limited capacity of education institutions to operate effectively, let alone manage complex changes, the increasing innovation and complexity of education projects, and the increasing uncertainty of the environments in which they must be carried out pose serious challenges for project planners.

Attempts by international assistance organizations to improve the management of development projects and programs evolved from simply transferring Western administrative approaches and techniques during the 1950s and 1960s to applying complex theories of institutional development during the 1970s and 1980s (Rondinelli, 1985; 1987). New concepts and theories emerged as earlier ones proved inadequate and as experience revealed the complexity and unpredictability of the development process.

Much of the criticism of early models of development administration, which transferred Western administrative practices and management techniques to developing countries, rested on two points. First, they presumed a single correct management strategy. Second, they gave insufficient attention to differences in culture and human behavior (Esman and Montgomery, 1969; Siffin, 1976; Esman, 1980).

The methods of project design that emerged during the 1960s and 1970s, during the era when most international assistance organizations were heavily involved in school construction, relied on a "blueprint" approach. These methods were strongly criticized during the late 1970s and early 1980s as the lending programs of international organizations shifted toward quality improvement. As we pointed out in chapter 1, "people-centered" projects could not be implemented effectively through blueprint plans. Johnston and Clark (1982: 11) point out that conventional blueprint planning and design processes assume that development problems are well-structured and unambiguous, that solutions involve mutually exclusive choices, that choices are made by a single set of authoritative decision-makers, and that decisions are carried out by a willing and responsible group of subordinates. In reality, they argue, "development actually involves a staggering variety of people and organizations all pulling and pushing and otherwise interacting with each other in pursuit of their various interests. Since each actor in this process has a more or less unique perspective on the development problem, the policy process invariably deals with numerous overlapping problems.

In reality the inherently "messy" nature of most development problems precludes planners from designing comprehensive and systematic solutions to development problems. Majone and Wildavsky (1978: 106) point out that the conventional "blueprint" approach to project planning and design "recognizes that implementation may fail because the original plan was infeasible. But it does not recognize the important point that many—perhaps most—constraints remain hidden in the planning stage, and are only discovered in the implementation process." The assumptions underlying blueprint plans ignore Hirschman's (1967: 35) observation that the term implementation "understates the complexity of the task of carrying out projects that are affected by a high degree of initial ignorance and uncertainty. Here project implementation may mean in fact a long voyage of discovery in the most varied domains, from technology to politics."

The design and management of routine construction or service delivery projects can be separate activities. The design can be completed before implementation begins. Effective management merely involves conforming to preconceived plans. But in innovative projects design and management should be mutually reinforcing activities that refine and improve each other over time. A flexible approach to planning recognizes that both design and management must be guided by an incremental process of learning and experimentation. Learning, in the broad sense that it is used here, is defined as "change in behavior resulting from experience." As Goldstein (1984: 236–237) points out, "learning occurs when a person's response to a situation produces a new or changed kind of performance which then becomes a part of his repertoire of behavior."

Blueprint planning is not effective for education reform projects because education planners and administrators cannot predict the future. Their experience and judgment, combined with effective analysis, will allow them to anticipate only some of the many problems that will inevitably occur during implementation. Thus, planners must design projects so that they are flexible and can be changed as managers learn from experience. The World Bank has found that although straightforward solutions can be developed for well-structured problems, this is frequently not possible in the education sector, where problems are complex and unstructured (Verspoor, 1985). Furthermore, few planners or administrators in education ministries know which educational methods are being used, how they are applied in schools, and how effective they are in increasing student achievement. Many of the changes in curriculum, teaching styles, and methods are applied idiosyncratically: different teachers with different capabilities and approaches use them in different ways with varying results. Thus, the ability of education administrators to predict or control the impact of innovations on student performance is limited and uncertain no matter how comprehensively the projects are designed.

Another reason why blueprint designs are ineffective for people-centered projects is that it is rarely possible to achieve rapid, comprehensive change in developing countries. In an analysis of education and training needs in sub-Saharan Africa, Auerhan and his associates (1985: 10) concisely summarize the conditions under which most education projects in Africa—and in many other parts of the developing world—are usually carried out:

> Education systems have their own technology, ways of operating and social assumptions and their environment is complex. Most of their professional administrators are drawn from a teaching background and tend to pursue management, improvement and change in a consultative, gradual and necessarily evolutionary manner. While radical or expeditious development methods are possible and have successfully been pursued in a totalitarian context, whether for a complete change in the system or simply for a literacy campaign, the education system is one where change must always coexist with preservation, where new practices have to be tested, phased in and adapted, and where resistance to change and the struggle against it may originate in parents, teachers, students, the business community or any of several powerful lobbies or pressure groups. In this sector, administrative orders and top-down policy directives can quickly become dead letters. As a result, to those who wish quick change, the managers often appear hidebound, lethargic and even reactionary.

The image of bureaucrats who stubbornly resist change is not, of course, always accurate. Governments in developing countries have made substantial changes in their education systems since the 1960s. However, these changes usually had to be made incrementally, and the adoption of the changes often took years.

Contingency theory overcomes the weaknesses of conventional blueprint planning by recognizing a range of appropriate management strategies and the central position of people in the development process. Recognizing these factors undoubtedly increases the complexity of designing development projects. But contingency analysis makes this complexity more manageable by clarifying the range of possible relationships between environments and tasks and the management strategies, processes, and organizational structures through which work is done. These relationships—or contingencies—are the basis for analysis and planning.

Contingency theorists argue "that different organizational structures are required for different organizational contexts" (Hage and Finsterbusch, 1987: 87). As we pointed out in chapter 1, contingency theory advances the idea that management processes and organizational structures must be created to fit a particular set of tasks that will be carried out in a specific environment. Contingency theory helps analysts to recognize and deal with three key variables. Two of those variables—the socioeconomic environment and the nature of tasks—affect management strategies directly. The third variable, the value orientations of people who will implement a project, also influences which management strategy is likely to be appropriate. The dimensions of these variables are shown in table 2.1 (adapted from Hellriegel and Slocum, 1982: 27).

Contingency theory holds that the management processes and structures needed by organizations operating in stable environments and performing routine tasks will differ from those needed by organizations performing innovative tasks in uncertain environments (Lawrence and Lorsch, 1969; Mintzburg, 1980). As uncertainty increases, an organization will be required to deal with increasing levels of ambiguity and risk. The most effective organizations are those that adjust their organizational structures and management processes to the degree of task innovation and environmental uncertainty with which they will have to work. Thus appropriate processes, structures, and the values of organizational members are contingent on environments and tasks.

Contingency theory holds that *one management strategy is not necessarily always better than another.* Most organizations must perform both routine and innovative tasks and must use some combination of mechanistic and adaptive management strategies for different types of tasks. Contingency theorists contend that any management strategy must be

Table 2.1 Three Contingency Variables

External environment	Stable	Unstable
	Certain	Uncertain
Tasks	Routine	Innovative
Value orientation of implementors	Low tolerance for ambiguity	High tolerance for ambiguity
	Low tolerance for risk	High tolerance for risk

designed to fit environment, tasks, and people and that organizations and their members can change over time to acquire the characteristics necessary to adapt to different levels of uncertainty and innovation (Pfeffer, 1978).

Contingency Theory and Project Design

The purpose of design is to establish a project's objectives and to describe the interventions and tasks by which objectives will be achieved. Designers also develop plans for implementation. Planners should describe how to use resources, organize decision-making, deal with uncertainty, mobilize demand, and promote and sustain commitment (Paul, 1982). In order to accomplish this, planners must identify the tasks and functions to be performed, the appropriate organizational structure to carry out tasks, and the most appropriate management strategies for moving the organization toward its objectives.

Many of the management problems that arise during a project's implementation are, in fact, problems of design. Selecting objectives that are feasible and sustainable within the constraints of available human, financial, and technological resources is the first step toward assuring effective implementation. Inadequate analysis and ineffective design of education projects can result in ambiguous statements of objectives and a general misunderstanding of a project's purposes. Havelock and Huberman (1977: 79) surveyed eighty-one technical advisers and national directors of education projects in developing countries funded by the United Nations and found that in only one-third of the cases were objectives very precisely defined, "despite the fact that technical assistance projects are commonly more rigorous in this respect than others." They discovered that objectives were often deliberately left vague in order to make projects more appealing

to supporters and to avoid conflicts. But leaving the objectives vague simply postponed conflicts and led to confusion, resistance to proposed changes, and difficulties in evaluating the results. Havelock and Huberman (1977: 142) found that in many UN assisted projects objectives were not specific, they were not defined to be operational, or they were not compatible with stated needs. Ambiguity in project objectives led in turn to a variety of implementation problems.

Other evaluations conclude that successful implementation depends on whether or not tasks fit environmental conditions and the managerial capabilities of implementing organizations. "Past experience has shown that the success or failure of a project is often critically determined by the responsiveness of its design to prevailing local conditions," World Bank (1983b: 30) performance audits point out. "Overly ambitious projects which try to introduce new processes and technologies in countries with little or no experience in this field, often run into serious implementation problems and may not generate the benefits that had been expected at the time of project approval."

When project designs are unrealistic, scarce resources are directed toward unattainable goals. Project implementation then becomes an exercise in futility. This danger is especially acute in those developing countries where managerial capacity is weak, educational needs are great, and political pressures for achieving quick results are strong. In these cases project design must be an iterative process of setting priorities and selecting tasks that strikes a balance between the needs of the implementing organization and the means available to meet them. Evaluations of World Bank education projects highlight the fact that successful implementation depends largely on five issues that should be dealt with in the design phase: first, the degree of consensus between the bank and the borrowing government on the goals and strategies of the project; second, the complexity of the project and the degree to which its implementation depends on effective coordination; third, the degree of innovation sought by the project; fourth, the degree to which demand exists or can be created for changes; and, fifth, the level of institutional development required to implement the project effectively (Middleton, 1986). These issues are addressed in this chapter and in chapters 3, 4, 5, and 6.

Although these five issues help determine the feasibility of project designs, they must be addressed differently in different countries. In most cases the nature and scope of the intervention must remain tentative at the outset of the project and be tested and adapted in local environments. Designing a project with tentative and testable objectives, and managing the uncertain process of implementation—as distinct from simply carrying out a comprehensive plan or "blueprint" design—is the principal challenge facing education planners and administrators.

A Contingency Analysis Framework for Project and Program Design

We noted earlier that during the design phase of a project, planners should describe the tasks to be carried out—including their degree of innovation—and set the basic requirements for management. Although relatively routine projects can be managed using a mechanistic strategy, this approach is much less effective for projects that require learning and incremental adjustment. A mechanistic management strategy cannot cope with the requirements of promoting change in societies and cultures where environments are complex and unstable.

Because many education reforms have both routine and innovative tasks, more than one management strategy may be needed in the same project. Each strategy should be suited to the nature of the work to be carried out and the degree of uncertainty in the environment. Thus, planners must be able to assess the degree of uncertainty in the environment and to identify the levels of innovation in project tasks more accurately in order to design appropriate management strategies. They must then assess the feasibility of management strategies and the management capacities of implementing organizations.

Contingency analysis helps planners to select a management strategy that fits the level of innovation in project tasks and the degree of environmental uncertainty in the country where the project will be carried out. Applying contingency analysis in project design involves a four-stage process in which planners do the following:

1. Assess the *management requirements* of the project, as it was initially conceived, in terms of environmental uncertainty and task innovativeness and in terms of the management process, value orientations, and organizational structures required to implement it effectively.
2. Assess the implementing organization's *management capacity* in terms of the same variables.
3. Compare the management requirements of the project with the management capacity of the implementing agency to determine its *feasibility*. If large discrepancies are found, planners decide if the design needs modification or the implementing organization requires assistance to expand its management capacity.
4. Formulate *implementation action plans* to guide the development of management capacity or to redesign the project so that it can be carried out with existing management capacity or to do some combination of both.

A fundamental reason for analyzing management requirements and capacity is to help choose the management strategy that is most appropriate for the level of innovation in the project and the degree of uncertainty in the environment. Two strongly contrasting management strategies—mechanistic and adaptive—are discussed in greater detail in chapter five.

1. *Mechanistic management strategy* is appropriate for projects that have relatively low levels of innovation and that will be implemented in relatively certain environments. It is the classic bureaucratic management strategy. Planning is comprehensive and follows a blueprint design; decision-making is centralized; leadership is exercised from the top and is based on position in the administrative hierarchy. Communication is largely top-down and one-way. Coordination is accomplished through commands. Control procedures emphasize command and conformance to rules. Monitoring emphasizes conformance to targets. Jobs are organized by function, and staff are motivated through a combination of monetary rewards and threats of punishment.

2. *Adaptive management strategy* is usually more appropriate for projects that have relatively high levels of innovation and that will be implemented in uncertain environments. It differs radically from mechanistic management. In adaptive management planning is incremental. It emphasizes constant adjustment of strategies and tactics based on experience. Decision-making is decentralized and participatory. Leadership is collegial and based on trust between supervisors and subordinates. Communication is interactive, and coordination is achieved through negotiation and facilitation. Managers give employees more responsibility for and control over their own activities and emphasize achievement of objectives rather than conformance to rules. They use monitoring to learn and to adjust their activities. They organize jobs around objectives and motivate staff by achievement awards, participation, training, and monetary compensation.

Project planners must find the appropriate combination of mechanistic and adaptive strategies for a given set of project tasks and identify the most appropriate management processes and organizational structures to assure effective and efficient implementation. These are then compared with existing management practices, first to identify discrepancies and then to determine which actions must be taken to make project management requirements and project management capacity more compatible.

Contingency analysis leads planners to a clear set of choices regarding the management of both routine and innovative tasks. If management requirements exceed capacity, a first option for change is to strengthen management capacity. If the requirements of the project so far exceed management capacity that management development is not likely to close the gap, planners must modify the project to reduce its management

requirements. They can reduce innovation by changing the nature of tasks, reducing the scope or pace of change, using interventions that are more predictable, or introducing methods that do not deviate too much from existing practice. They can introduce innovations incrementally or design projects to proceed slowly through experimental, pilot, demonstration, and adoption phases.

In some circumstances planners can lessen uncertainty by reducing complexity and increasing stability in the implementing organization's environment. Sometimes they can protect projects from economic and budgetary fluctuations, for example, by increasing the proportion of international financing or by including recurrent costs in project loans. They may be able to reduce the number of institutions involved in implementing the project and recommend ways of mobilizing political support for the proposed innovations among political leaders, education interest groups, teachers, administrators, and beneficiaries.

Issues in Designing Education Reform Programs and Projects

Decisions on appropriate objectives, tasks, and interventions will, to a large extent, be contingent on the magnitude or size of the educational changes that are needed and on the geographical coverage or scope of the program required to achieve them. The larger the size and the greater the scope of changes, the more attention project planners and managers must pay to mobilizing demand, establishing decentralized organizational structures and flexible decision-making processes, dealing with uncertainty, and generating and sustaining commitment and support.

The World Bank's experience with education projects, for example, reveals three major issues that must be addressed in the design stage to increase the chances for successful implementation. These have to do with simplicity versus complexity, balancing feasibility with the need for change, and mobilizing demand for change (Verspoor, 1985). The dilemmas for project planners arise from the fact that simple, uncomplicated projects are implemented more easily and usually more successfully than complex, multifaceted ones, yet meaningful educational reforms, by their very nature, must often be complex. It is not easy to simplify projects and still have a strong impact on improving educational quality. Moreover, although projects must be economically and technically feasible, achieving change often requires pushing people and organizations beyond what they have done in the past and to take risky actions, the outcomes of which cannot always be predicted with certainty. Finally, although the need for technical or organizational changes in education systems may be obvious to experts, introducing and sustaining changes often depend on generating demand and mobilizing political support.

Simplicity versus Complexity in Project Design

Although the education problems and needs of most developing countries are serious and complex, overly ambitious designs—manifested in multiple objectives, rapid change, substantial requirements for human and financial resources, and complicated processes of coordination—create equally serious problems in implementing education reform projects. These problems are exacerbated by political and organizational instability in many developing countries (Middleton, 1986).

Most projects financed by the World Bank during the 1970s were extremely complex. As we noted earlier these "Christmas tree projects" typically had a large number of tasks and components addressing many educational needs. The attention of project managers had to shift continuously from one component to another. Most project managers recognized the futility of attempting to deal with many educational issues at the same time and focused their attention instead on construction and equipment procurement, usually the easiest tasks with the most certain outcomes.

The World Bank found that the complexity of these "Christmas tree projects" was compounded by the paucity of experienced managers in the education sector of most developing countries. Education is not a "glamour" sector that easily attracts highly qualified staff, and there was little effort made in most countries to develop educators into managers. Nearly all education administrators working in the sector were teachers who were promoted to an administrative position without adequate managerial training. Inexperienced staff were often put in charge of large and complex projects, resulting in delays, cost overruns, and ineffective management. Low levels of managerial capacity in education ministries left them unable to absorb available international grants or loans (Verspoor, 1985).

The World Bank's long experience in the education sector suggests that ensuring simplicity in project design by choosing a dominant project objective is an essential first step toward successful implementation, particularly where the political and organizational environments are unstable (Paul, 1982). Such an objective should be clearly defined and operationally feasible, that is, progress toward it should be measurable.

In practice, however, it is not always possible to limit a project to a single objective. Narrowing the focus to those objectives that can reasonably be achieved with existing or easily obtainable resources raises the probabilities of successful implementation, but it may not bring about sufficient change to improve educational quality. When complex issues must be addressed, contingency analysis can help designers to explore the limits of complexity and find an appropriate level of innovation that can be managed by the organizations that will implement the project. When

contingency analysis indicates, for example, that a set of complex tasks are necessary to bring about significant educational improvements, planners can sequence the tasks in ways that allow managers to focus on less complex problems before tackling more difficult ones.

Balancing Feasibility with the Need for Change

Although project designers must bring ambitious goals in line with available resources, the objectives of an education project should not always be limited to what is known to work. Doing only what demonstrably works may reduce uncertainty and risk, but it also limits the scope of change. It can discourage educators from experimenting with solutions that may have more attractive educational or economic results. For example, the World Bank's emphasis on the provision of textbooks is often justified, but there is a danger that once this routine provision of books appears to work well, other potentially higher yielding, albeit more uncertain and risky, alternatives such as teacher training or radio instruction may be neglected. This danger also appears in recurring proposals for construction of prefabricated school buildings. Prefabrication is obviously an easy response to the need for schools in rural areas, but the adoption of this well-known, capital-intensive approach is frequently expensive and technically inappropriate. It may also inhibit the search for less expensive, labor-intensive construction techniques that make use of local materials and that are better adapted to local conditions.

By exploring the relationships between the level of innovation in a proposed project and the level of management capacity of the implementing organization to cope with change, project planners can use contingency analysis to help define the appropriate balance between the need for change and the feasibility of a proposed reform.

Generating Demand and Mobilizing Support for Change

An important element of design is to choose objectives, tasks, and interventions for which there is commitment and support from intended beneficiaries. Often, however, when projects promote change, provisions must be made for mobilizing demand during implementation. Many education reform projects are designed by bureaucrats in the ministry of education, university professors, or foreign consultants who use standard professional solutions to education problems. Frequently their proposals do not reflect a real understanding of what teachers, parents, or students actually need or want. Planners often fail to conduct a needs analysis and ignore the requirements for mobilizing demand.

A World Bank-funded project in Morocco to revise the curriculum and set up experimental primary schools to test the innovations, for example, encountered myriad problems because the project was prepared with only

limited participation by the Moroccan government. No special effort was made during the design stage to build commitment to reforms among local communities, administrators, or teachers. The failure to canvass adequately local communities during the early phases of the project led to delays in identifying school sites. Construction work was slowed for over three years due to the remote rural location of the experimental schools and the lack of supervisory staff in the project implementation unit. It took nearly four years to resolve supervision problems, and these problems were solved only after the project implementation unit relinquished oversight of the civil works aspects of the project to regional education directorates (Middleton, 1986). Experience suggests that if a project is to be implemented effectively, planners should formulate strategies for mobilizing demand early in the preparation process. Depending on the type of project under consideration, demand mobilization would focus on potential beneficiaries such as students or employers or on local implementors such as teachers and administrators. Teachers must always be convinced of the feasibility and usefulness of innovations, especially when changes require deviations from existing classroom practices or extra uncompensated work (Sarason, 1972; Fullan, 1982). Mobilizing demand among teachers and school administrators is especially difficult in those poorer developing countries where they are underpaid and demoralized.

Where demand is weak, planners must give special attention to eliciting participation in project design. Teachers, administrators, and community and political leaders should be involved in the design process to assure that the proposed innovations fit with local conditions and to motivate teachers to try new approaches. Information about proposed changes must also be disseminated to parents and students before and during the project.

Experience with education reform projects in developing countries shows quite clearly that where insufficient attention was given to identifying real needs or to mobilizing demand for change, innovations were difficult to implement. The comprehensive secondary schools component of the World Bank's first and second education projects in Colombia, for example, represented a significant departure from academically oriented secondary education (Verspoor, 1988). Parents and students suspected that comprehensive education was a second-best alternative, an opinion that was confirmed when universities declined to make planned modifications in entrance requirements and when postsecondary vocational training institutions did not develop continuing education options as planned. As a result, public acceptance of the comprehensive school reform was weak, and this undermined the effectiveness of implementation.

A project to extend practical skills into the primary curriculum and provide technical training for postprimary school leavers in Tunisia dur-

ing the late 1970s and early 1980s also ran into serious implementation problems, initially because of the government's failure to mobilize support for the innovation. But the staff of the project implementation unit (PIU), seeing that little progress had been made during the first three years of the project, redirected it (Verspoor, 1988). The PIU staff began offering more extensive teacher training, providing more equipment, workshops and laboratories, and making deliberate efforts to elicit the participation of other government agencies and beneficiary groups. PIU personnel mobilized the support of headmasters and teachers. Regional education administrators and inspectors were actively involved in the implementation process. The Ministry of Agriculture was asked to contribute significantly to the design and content of the practical activities program in agriculture, and eventually the ministry was encouraged to provide advice on program implementation at the regional and school levels.

Commitment from parents and civil authorities grew as the project demonstrated success, and over time their support became the key element in sustaining the program. Although the reform began as a top-down initiative, the strong grass-roots response became a crucial element in its successful implementation. School efforts were supported by parents, local industry, and by small businesses created by the students for selling flowers and vegetables grown in the school garden, furniture, needlework, and woven cloth.

Similar problems plagued the implementation of projects in Pakistan. In a large education project that began in 1978, little effort had been made by the designers to mobilize support from teachers. This had adverse repercussions throughout the life of the project. Frequent changes in top-level staff in the Federal Implementation Unit led to delays and administrative problems. Antagonism to external experts and disagreements about their role in the project posed another serious problem. In some provinces the government did not appoint an adequate number of learning coordinators to implement the reform. New staff received little or no orientation, and the level of awareness about the project and its goals among those who were to participate in it was low (Verspoor, 1988).

Assessing the demand for educational innovations and designing strategies for mobilizing demand are not easy tasks. When demand for change is weak, planners must design the project to allow learning by doing and modification during implementation.

Summary

Proposals for highly innovative projects should provide broad, flexible strategies and guidelines for implementation rather than a blueprint for action. The design should establish a strategy of intervention and man-

agement and leave tactical and operational details to those who will be responsible for implementing it. Management strategies should encourage learning from experience and adaptation of the project to changing circumstances.

Participation by individuals and groups whose actions could seriously affect implementation, or who could be seriously affected by the project, is important. Participation should begin during proposal preparation and project design and continue through implementation. Each group who participates can be expected to have a different perspective on the problems and issues that the project will address and on the most effective means of solving, alleviating, or coping with them. However, each group can be expected to bring its own knowledge, experience, understanding, and resources to the achievement of project objectives.

Another means of learning from experience is through frequent monitoring and evaluation. Both the design of the intervention and of project management strategies should emphasize organized, yet flexible processes for collecting, analyzing, and using information for learning and decision-making. Managers always need accurate information, but their need increases substantially when projects are highly innovative and must be implemented in uncertain environments.

Contingency analysis can help education planners and administrators in developing countries to meet the challenges of managing education reform projects. Tasks are increasingly innovative, and the political and economic environments in which they are carried out are often uncertain. The people involved may or may not tolerate ambiguity well. The management structures of implementing agencies tend to be mechanistic and most appropriate for routine tasks in stable environments. This implies that traditional organizations are not likely to manage innovative tasks effectively. Thus planners must suggest ways of changing organizations and management processes to meet the challenges of innovation or of reducing the level of innovation required by reform projects.

Planners in international assistance organizations play key roles, working with government officials, in designing education reform projects. Contingency theory can provide them with a method for analyzing the environment and the degree of innovation in proposed tasks. Mechanistic and adaptive management strategies offer principles for choosing appropriate management processes and organizational structures. In chapter 3 we describe in more detail guidelines for applying contingency theory in project and program design.

CHAPTER THREE

An Operational Model for Contingency Analysis

SELECTING AN APPROPRIATE management strategy is one of the most important factors in implementing education improvement projects successfully. We define management as the process of mobilizing and using resources to get things done through other people (Hellriegel and Slocum, 1982). This definition focuses the attention of project designers on the characteristics of organizations that allow them to help people accomplish specific tasks within a particular environment.

In this chapter we define key concepts in contingency theory and then describe guidelines for applying contingency analysis so that project planners can make conscious choices among alternative management strategies.

A *management strategy* is a particular pattern of management processes and organizational structures that enables an organization to accomplish specific tasks in a given environment. Thus, four important elements that planners must consider in selecting a management strategy are the environment, tasks, organizational structures, and management processes. Each of these elements can be influenced or controlled in different degrees.

1. The *environment* includes those forces or factors that are "outside of a given system to which the system seeks to adapt in order to achieve its goals and survive" (Middleton, 1985a: 45). Planners are least able to control the environment. The remaining four elements—tasks, structures, processes and staff—are more manageable.

2. *Tasks* are clusters of activities that must be carried out successfully to accomplish a project's objectives. Objectives are statements about what an organization wants to accomplish and how it will provide products or services to other organizations in its environment in return for resources and support. Thus the nature of tasks is fundamentally determined by objectives, and objectives are influenced by demands from the environment. When demands change and become more complex, so must the

nature of tasks. It is through this relationship that innovations are introduced in organizations. Therefore, tasks can be managed only in relation to external demands.

3. *Management processes* are the dynamic patterns of action that enable an organization to determine and achieve its objectives by carrying out tasks. They include planning and decision-making, leadership and authority, communication, coordination, control, monitoring, and staffing.

4. *Organizational structures* are arrangements that establish predictable relationships among people and tasks and between the organization and its environment. They are designed to accommodate effective management processes.

Traditional management science emphasizes the division of tasks into specialized functions. Management scientists see organizational structures as systems of authority through which members work. This arrangement serves reasonably well in relatively stable environments with little change in demand. The pace of change in most societies has accelerated, however, resulting in complex and rapidly changing environments. Unstable environments change the demands made on organizations and require them to take on increasingly complex and innovative tasks. Management science now recognizes that different environments, changing demands, and different tasks require different management strategies; that is, different ways to arrange processes and structures to accomplish tasks (Pfeffer, 1978; Mintzburg, 1980; Hage and Finsterbusch, 1987).

Contingency Analysis: An Overview

As we pointed out in chapter 2, the application of contingency analysis to the design of education projects involves four phases. Figure 3.1 is a flow chart of the contingency approach to project design that shows the sequence of analysis.

Planners usually design a project initially by technical criteria, identifying the educational objectives and tasks on the basis of technical needs. In our framework for contingency planning we take these tasks as given at the beginning of the analysis. The proposed objectives and strategies of the project determine the tasks to be accomplished and, together with an analysis of environmental factors, determine the management requirements of the project.

In phase 1 of the analysis planners assess the degree of uncertainty in the environment and the level of innovation in the project. Then they determine an ideal management strategy. They assess the strategy to identify the value orientations, management processes, and organiza-

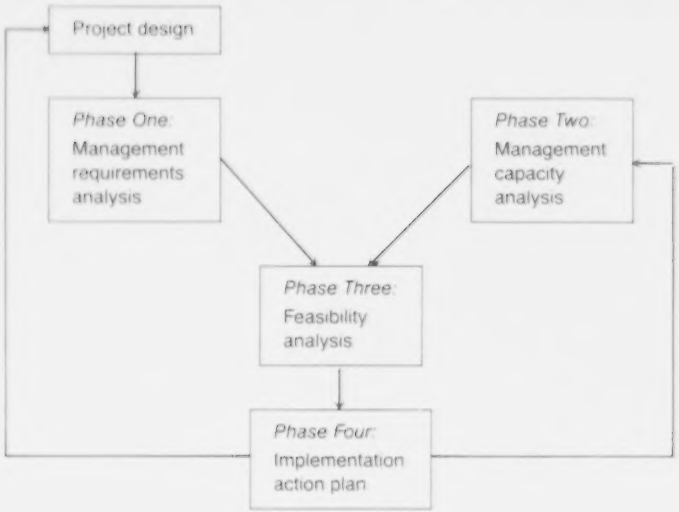


Figure 3.1 Operational Model for Contingency Analysis

tional structures required for successful implementation. The result of phase 1 is a description of the ideal set of requirements for project management. The management capacity of the implementing agency may or may not be compatible with these requirements.

In phase 2 of the analysis planners assess the existing organizational structures, management processes, and value orientations of the implementing organization. The result is a profile of current management capacity.

Planners then compare requirements and capacity during phase 3 to determine the project's feasibility. They use the results of this comparative analysis in phase 4 to develop implementation plans. These plans outline the actions needed to expand management capacity or to change the project design so that it can be implemented with existing capacity.

The analysis should be iterative. Planners can make the characteristics of the project and of the implementing organization more compatible through successive adjustments in project tasks and in plans for expanding management capacity. The analysis may have to be done several times and should continue during implementation—especially when projects are highly innovative and require changes in management processes and organizational structures in order to adjust to changing environmental conditions.

Phase 1: Management Requirements Analysis

The purpose of this phase of the analysis is to gather information about the environment and the degree of innovation in project tasks in order to determine the required management strategy. The analysis is sequential and, as shown in figure 3.2, leads planners through seven steps of analysis from identifying the project's task clusters to selecting appropriate management strategies.

Step 1: Defining Task Clusters. Most of the education projects that are funded by international assistance organizations have a wide range of tasks with different levels of innovation that require different management strategies. Planners should group the tasks into categories with similar management requirements.

A project design identifies what international assistance organizations call "project components." In World Bank projects, for example, components are sometimes defined by functions such as procurement, construction, or teacher training. Sometimes they are defined by product or by client group: textbook production, university development, or primary school reform. This lack of precision is complicated by the practice of combining several different projects of relatively small size to create what international assistance organizations consider to be a viable "investment package." Projects that emphasize relatively routine functions, such as procurement and school construction, are likely to be organized into functional components, while those seeking to achieve significant changes in the education system are more likely to be organized by product or client group.

Categorizing task clusters and identifying their levels of innovation is not always easy. As a practical matter, planners design most projects to be implemented by existing organizations. Thus, one way to categorize tasks is by the implementing agency. However, at this stage of analysis such a classification should only be used for initial guidance. A second level of analysis can distinguish clusters of tasks by the beneficiaries to be served or by level of innovation. The results of this analysis may or may not conform with the classification of tasks by implementing agency—that is, with all the routine tasks in one organization and all innovative tasks in another. Moreover, planners should identify task clusters that have different levels of innovation and that serve different groups of beneficiaries.

Table 3.1 shows an example of task clustering. In this example, planners identify seven task clusters: two dealing with construction and procurement, two dealing with curriculum development and teacher training, and three dealing with the training of researchers, the organization of employer councils, and the implementation of studies. Each task cluster

Figure 3.2 Management Requirements Analysis

should be analyzed separately to determine its level of innovation, a process that is described in more detail in chapter 4.

Step 2: Assessing Environmental Uncertainty. Next, planners assess the level of environmental uncertainty for the project as a whole and for different task clusters. Chapter 4 describes the methods of assessing environmental uncertainty. Planners can determine the degree of environmental complexity and stability for each task cluster based on qualitative criteria or on factors that can be scaled to yield numerical estimates.

Analysts can ask the following types of questions to assess the degree of uncertainty in the environment in which the project will be carried out:

- Has top political leadership in the government and in the ministry of education changed frequently in recent years, and how long is the present leadership likely to remain in power?
- Are there well established and reliable processes for political succession in the country?
- How diversified is the national economy and to what degree do changes in economic conditions depend on international markets?
- To what extent does financial support for education depend on national economic conditions?
- How much financial and political support does the national government give to the education sector?

Table 3.1 Task Analysis Example

	Project components		
	Primary education development	Adult training centers	Studies
Objectives	–Expand access –Improve quality	–Increase rural employment –Establish links with employers	–Build research capacity –Prepare next project
Investment components	–80 new schools and equipment –Curriculum development –Teacher training	–10 centers and equipment –Curriculum development –Teacher training	–Technical assistance –Fellowships
Beneficiaries	–Primary students –Primary teachers	–Rural adults –Small enterprise owners	–Primary and adult programs –University faculty
Implementing organizations	–Division of Primary Education –Ministry of Public Works	–Ministry of Rural Development	–National university
Task clusters	–Construction and procurement –Curriculum development –Teacher training	–Construction and procurement –Curriculum development –Teacher training –Organize employer councils	–Staff training –Implement studies and evaluations

- How strongly has the government supported educational changes or reforms in the past?
- How many different constituency groups—government agencies, teachers groups, professional associations, parents groups—can be expected to become involved in education reform policies and programs?
- Which groups and organizations within and outside of the government are likely to benefit directly or indirectly from proposed educational changes?
- Which groups and organizations are likely to oppose the changes that will be promoted by the project?
- How many different organizations, agencies, or institutions will be involved in implementing the project?
- How many institutions will have to provide support directly and indirectly in order for the project to be implemented effectively?
- At how many levels of administration will the project be implemented?

Planners combine their judgments about the complexity and stability of the environment derived from answers to these questions to reach an overall assessment of uncertainty.

To analyze the environment effectively requires a good understanding of and some historical perspective on social, political, and economic conditions in the country, and of specific factors affecting the education sector. A detailed study of available background information is an essential but by no means a sufficient step. Planners should discuss these issues with education officials and other informed people, make a "map" of the network of institutions concerned with the project, and analyze the positions of various interest groups.

Step 3: Defining Task Innovation. At this stage planners should define the level of innovation for each task cluster, using the methods described in chapter 4. They should make judgments about the degree to which the results of the innovations can be measured (*analyzability*), and the variety of changes that are likely to be needed for each cluster (*predictability*). They must also make judgments about both the scale of innovation (how extensively it will be disseminated) and the degree to which changes will require deviation from existing practices, methods, and behavior (*demandingness*).

Among the questions that analysts need to ask in this step of the analysis are the following:

- Does the proposed project use known and tested education models and techniques?
- Do the tasks require those who will be involved in implementation to use new management methods and techniques or to depart from well-established management processes and procedures?
- Do the changes being proposed require implementors or beneficiaries to develop new skills or to apply resources or technology that are not now available?
- How many different elements of change or innovation are involved in achieving the goals of the project?
- Can the results of the innovations be predicted with a high degree of certainty?
- Can the impacts of the changes be easily identified and measured?
- Can the innovations required by the project be divided easily into phases that permit incremental change in small steps with modest changes in job behavior?
- In how many institutions or areas of the country will project tasks be carried out?
- Over what period of time will the changes be introduced, tested, and adopted?

Planners combine their judgments about predictability and demandingness to assess the level of innovation.

Step 4: Determining Management Strategy. Selecting a management strategy that fits the levels of environmental uncertainty and innovation for each task cluster is the next step in contingency analysis. This is done by combining the judgments reached in steps 3 and 4. Chapter 4 describes in more detail the major strategies for managing education projects. Usually, routine projects with little innovation that will carried out in a stable and relatively certain environment can be implemented using a *mechanistic* management strategy. Projects that are routine but that must be implemented in an uncertain environment require an *open-mechanistic* management strategy, one in which changes in the environment can be monitored. Highly innovative projects that will be carried out in a relatively certain and stable environment need a *professional-adaptive* management strategy. And highly innovative projects that will be implemented in an uncertain and unstable environment usually need an *adaptive* management strategy.

Step 5: Assessing Value Implications. The next step is to identify the cultural values that are implied by the management strategy selected in step 4. Among the questions that analysts might ask are the following:

- Do the proposed project tasks require hierarchical or collegial patterns of authority in order to be carried out effectively?
- Does implementation of the proposed project require staff and beneficiaries to take risks or to be more competitive?
- Do the tasks require strong consensus among those involved in implementation about objectives and means?
- Do the tasks proposed by the project depend on collective or individual actions on the part of implementors and beneficiaries?
- Do the changes intended by the project depend heavily on behavior associated with particular gender ("male" or "female") characteristics or roles?
- Do the changes proposed by the project depend on economic motivation or a "service" orientation on the part of implementors and beneficiaries?
- What incentives are needed by implementors to carry out the changes and by beneficiaries to participate and adapt changes effectively?

Chapter 4 describes guidelines for assessing cultural characteristics, value implications, and behavioral patterns.

Step 6: Determining Appropriate Management Processes. At this stage planners make decisions about appropriate management processes for reaching the objectives of the project and carrying out the required tasks using the management strategy selected in previous stages of analysis. Chapter 6 offers an assessment of alternative management processes.

Step 7: Selecting Organizational Structures. Finally, planners consider the range of organizational structures that are appropriate for the management processes selected in the previous steps of analysis. They choose the most appropriate organizational arrangement based on decisions about management strategy, value orientations, and management processes. Chapter 7 provides an assessment of the strengths and weaknesses of different organizational structures.

Step 7 completes the analysis of the project's management requirements. Thus far project designers have identified clusters of tasks that seem to share similar management characteristics and levels of innova-

tion, assessed the level of uncertainty in the environment for each cluster of tasks, and defined the level of innovation characterizing each task cluster. After these steps are completed, designers then determine the appropriate management strategy for each cluster of tasks, assess the value implications of each strategy—that is, how staff would be expected to behave in order to apply the management strategies—and identify the management processes and organizational structures that will be needed to achieve the project's objectives.

At this point project planners need to review the outcomes for coherence. They should answer basic questions, such as: How well do the results of the seven steps fit together to form a logically coherent (though still abstract) project design? They must identify inconsistencies—such as the need for interactive communication systems, for example, for a task cluster that otherwise calls for a mechanistic strategy. Are the other management processes consistent with the management strategy? Does the deviation of a single management process from the expected pattern indicate (at this preliminary stage of analysis) any potential difficulties?

Phase 2: Management Capacity Analysis

In the first phase of the analysis planners focus on identifying the management requirements of the project as it was initially designed. To find out whether these requirements can be met by the implementing organization, they must assess its current management capacities. This assessment, as shown in figure 3.3, involves analyzing the same five factors that were examined in phase 1: structures, processes, values, innovativeness, and strategy. However, the order of analysis in phase 2 is reversed. Instead of working deductively from a given project design, analysts work inductively from structures through processes, values, and strategy. They determine the ability of the organization to manage innovation by evaluating its past experience with managing change. Planners take as given the results of environmental uncertainty analysis done in phase 1.

Phase 2 of the analysis is empirical in that it seeks to generalize from observations about how things currently get done. Planners should, to the extent possible, judge each element independently. One of the benefits of analyzing existing management capacity is that it allows planners to identify inconsistencies in current management processes. These inconsistencies are more obvious if judgments are made about each element individually.

Step 1: Structure Assessment. Analysts first review the structures of existing organizations. They should examine organization charts, organizational policies, and the ways in which authority is actually distributed.

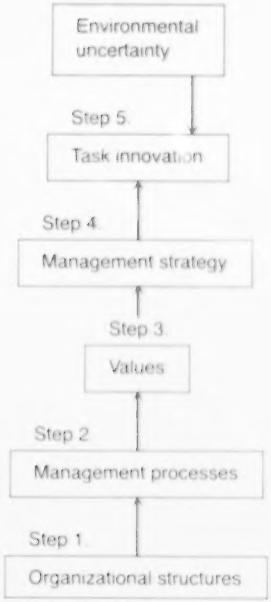


Figure 3.3 Management Capacity Analysis

something that can be understood only through extensive discussions and observation. They should examine the technology of production and the ways in which the organization seeks and uses information. Planners should understand not only the existing patterns of organization, but also why those patterns emerged.

Analysts should examine the operation of the proposed implementing organization to determine if its structure is conducive to achieving the project's goals. In addition to exploring the issues raised in chapter 7, analysts might ask the following types of questions:

- Do project tasks fall within the current mission and functions of the proposed implementing organization, and if not, will the organization require new authority, resources, skills, or technology?
- What is the formal division of labor for performing tasks among organizations and within the proposed implementing organization?
- Are current divisions of responsibility responsive to the needs of beneficiaries and managers who will be responsible for carrying out the project's tasks?

- Does the proposed implementing organization have a performance record that indicates how effectively it is likely to manage the tasks included in the project?
  - If so, how well has it performed similar tasks in the past?
  - If not, how will the organizational structure be modified to take on new and unfamiliar responsibilities?
- If the proposed project tasks are new for the organization, how much opposition and support within the organization are they likely to generate, and how can potential conflicts be reduced and support increased?
- Has the proposed implementing organization been able to meet the needs and demands of intended beneficiaries by providing services of adequate quality and quantity?
- If not, how will the structure of the organization be changed to increase its responsiveness to the needs of clients and beneficiaries in the proposed project?
- Have relationships between the proposed implementing organization and its clientele been satisfactory enough to allow the participation of intended beneficiaries in project planning and implementation?
- Do beneficiaries view favorably the role of the organization in the proposed project?

These questions will help project designers to understand better the relationships between the nature of the tasks and the structural constraints within the implementing organization on managing them.

Step 2: Assessment of Management Processes. To the extent that time allows, planners should assess each management process separately, using the criteria described in chapter 5. In many cases individual management processes clearly will have either mechanistic or adaptive characteristics. But in some cases planners will have to make difficult judgments about their characteristics. They should also collect information about the quality of management processes—how well they work and what results they achieve. In addition to exploring the issues raised in chapter 6, analysts can seek answers to the following types of questions:

- Has authority for decision-making been decentralized to those units and individuals who are responsible for achieving results?
- Is there a managerial process for translating the project's goals and objectives into specific tasks and activities and for adjusting them during the life of the project?

- How does the implementing organization coordinate with other organizations and coordinate the work of units within its own structure?
- Are current processes of coordination adequate to the needs of the proposed project?
- What are the key patterns of decision-making and communications within the organization and are they appropriate to carrying out project tasks effectively?
- What are the budgetary and human resource allocation patterns and are they appropriate for carrying out the proposed tasks?
- Can the budgeting process provide adequate and timely financial resources to project activities and obligate resources at the pace required?
- Does the organization have the appropriate mix of skills and knowledge among its staff, and if not, how will the organization go about developing them?
- Are there efficient and effective processes for gathering, analyzing, and reporting information about project performance, resource use, and impact?
- Do processes exist for providing information to decision-makers in a way that will help them make informed choices?
- Do adequate communications processes exist for beneficiaries to inform project managers about their needs and to voice complaints about project operations?
- Are pay scales, benefits, rewards, and incentives adequate to attract and retain appropriately skilled and motivated staff?
- Are operating rules, regulations, and procedures appropriate to the characteristics of the tasks to be performed?
- Do processes of financial management permit reasonable expenditure forecasting, relate costs to outputs, and produce accounts that give managers timely information to make corrective decisions?
- Is there a purchasing and procurement process staffed with qualified people to find suitable bidders, evaluate bids, award contracts, maintain quality specifications, and secure fair prices?

Management processes are important because they are the means by which people in organizations perform tasks and achieve objectives. If they are inappropriate for the tasks to be performed, the project's implementation will be fraught with problems from the outset.

Step 3: Values Assessment. Using the value dimensions described in chapter 4, designers should establish the dominant value orientations of the staff of the implementing organization. The analysis is necessarily imprecise and judgmental. But it can be supported by a review of the literature on the culture of the country and by examining the patterns of behavior of members of the implementing organization during previous projects. Questions that need to be addressed include:

- What are the types of values found in the organization?
- How widely shared are the patterns or clusters of values found in the organization?
- How strongly held are these values among staff?

The primary question to be answered in this step of the analysis is: Do social or cultural traditions and practices within the implementing organization conflict with the changes that will be introduced by the project, and if so, how will the implementing organization deal with them?

Step 4: Assessment of Management Strategy. Assessments of organizational structure and management processes will yield information that allow project designers to categorize them into one or more of the four management strategies described in chapter 5: mechanistic, open-mechanistic, professional adaptive, or adaptive. Organizations that have well-integrated management processes and structures will usually fall clearly into a single management strategy. In other cases the assessment of structure and management processes may not clearly reveal a single management strategy. In such cases organizations are likely to be plagued with management problems.

Step 5: Innovation Assessment. The final step in management capacity analysis requires planners to evaluate the organization's experience with managing innovative tasks. Analysts study a sample of the organization's programs and projects to identify the kinds of tasks it carries out and the effectiveness with which they are managed. The concepts of task predictability and task demandingness described in chapter 4 can be used in this phase of the analysis.

In assessing management structures, processes, values, and strategies the analyst gathers a variety of information helpful in reaching judgments about how to characterize management capacity. Analysts should collect data by reviewing documents, interviewing managers and staff, and observing people at work. This information can provide insights into the reasons why structures and processes operate as they do. The analysis can increase project designers' understanding of how management processes

can be improved or of how to change the project's components to conform to existing management capacity.

Completing the five steps of management capacity analysis enables the project designer to understand better the degree of coherence that exists in an organization and the degree of congruence among its structure, processes, and management strategy. The analysis provides a diagnosis of the strength of current management processes in terms of the tasks to be carried out in the proposed project.

Relatively few organizations will have perfectly congruent structures, processes, values, and management strategy. It is common to find organizations that have been set up to operate under a professional-adaptive strategy, for example, but that retain—or are required to retain—hierarchical authority for decision-making and formal processes of communication. The result is an organization that is more mechanistic than adaptive. Inappropriate management processes will prevent its members from acting in the flexible, responsive, and collegial fashion required of professionals.

Thus, the analysis of management capacity serves two useful purposes. First, it identifies discrepancies in the management strategy, structure, and processes of the implementing organization. This diagnosis can be useful in addressing current management problems. Second, it defines in some detail the way things currently do or do not get done, providing a profile with which planners can compare existing management capacity with the management requirements of the proposed project. This comparison takes place more systematically in phase 3.

Phase 3: Feasibility Analysis

A basic question that contingency analysis attempts to answer is "Can the proposed project be successfully implemented by an organization using its existing management strategy?" The answer comes through comparing the results of the management requirements and management capacity analyses.

Analyses of management requirements and management capacity will produce profiles of strategies, values, processes, and structures for each task cluster in the project. By comparing these profiles the planner can identify discrepancies. For example, if current management strategies are mechanistic, the management requirements profiles for highly innovative projects will reveal a relatively large number of discrepancies. The required strategy is likely to be professional-adaptive or adaptive, and the required structures and management processes will differ significantly from those the organization currently uses.

Figure 3.4 shows a comparison of management requirements and management capacity that can help project designers answer the follow-

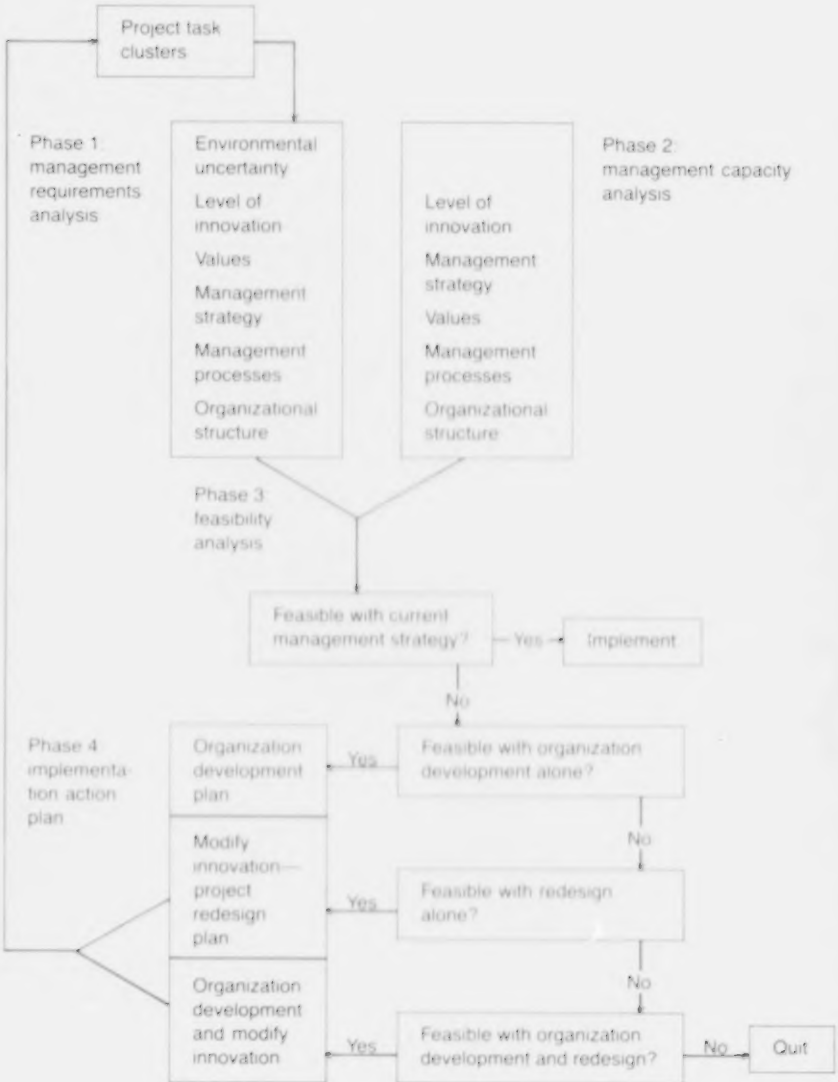


Figure 3.4 Feasibility Analysis

ing questions: (1) Is the project feasible with current management capacity? If the answer is yes, no specific actions are required beyond customary implementation planning. If the answer is no, a second question must be asked: (2) Is the project feasible with management development alone? If the discrepancies identified through feasibility analysis can be addressed through training, strengthening management processes, and structural changes, planners should include an organization development program in the project. Informed by contingency analysis, such a component can be phased in with other project activities to expand management capacity as tasks must be carried out.

However, if the discrepancies are too large to be adequately addressed through organization development, then the project must be modified, leading to a third question: (3) Is the project feasible with redesign alone? Modifying the design of a project to reduce innovation is often the simplest and lowest cost strategy when management requirements exceed capacity. However, it is often difficult or undesirable to modify the project so that it can be implemented with existing management capacity and still meet important education needs. In such cases a fourth question must be asked: (4) Is the project feasible with both organization development and redesign? A positive answer leads designers to consider an implementation plan that combines organization development to address selected discrepancies and redesign of the project to modify management requirements. Redesign involves modifying the level of innovation or restructuring the project to reduce the level of environmental uncertainty. A negative answer should lead planners to question the feasibility of the entire project.

Phase Four: Implementation Planning

If the feasibility analysis shows large discrepancies between management requirements and management capacity, planners may be able to devise two kinds of implementation plans: one that produces organizational change and expands the capacity of the implementing agency to manage the project as it was designed or one that modifies the project to reduce the levels of innovation, and possibly of uncertainty. In this phase of the analysis planners use the results of phases 1, 2, and 3 to formulate these plans. Implementation plans are discussed in more detail in chapter 8.

Planners must conduct field investigations and examine secondary sources in order to answer the questions posed at each phase of analysis. Nadler (1977: 119) points out that there are strengths and weaknesses to every method of data collection and that analysts must choose among methods carefully.

Interviews are flexible and allow analysts to collect data on a wide range

of subjects. They are usually a rich data source through which analysts can build rapport with those being interviewed and explore the nuances and subtleties of the situation. However, interviews can be expensive. The interviewer or the person being interviewed can bias the results, and it may be difficult to interpret and code responses.

Questionnaires allow analysts to quantify and summarize responses easily and to collect data from large numbers of people relatively inexpensively. But questionnaires are nonempathetic, and predetermined questions may miss important issues or nuances of situations. Obtaining adequate responses may require persistence. There is also a danger that questionnaire data will be overinterpreted.

Observation allows analysts to collect data on behavior rather than reports of behavior, to see things as they are happening rather than in retrospect, and to adapt to complex situations. However, observation may produce a small and unrepresentative sample. It may result in misleading interpretations. It may be difficult to code results and to verify the validity of conclusions.

Secondary data and unobtrusive measures provide nonreactive information with little response bias and high face validity. Secondary data can usually be quantified and interpreted easily. However, analysts sometimes encounter problems with access and retrieval, validity, and coding. Moreover, if the analyst does not understand where data came from, how they were collected, and the context in which they are reported, interpretations can be misleading.

Because most project planners work under time pressures and with limited resources, they usually rely heavily on secondary sources of information. To the extent possible, however, they should validate secondary sources through interviews, questionnaires, and personal observation.

Summary

Planners can use contingency analysis to improve the design of education projects and to reduce the gaps between the management requirements of proposed reforms and the management capacity of the implementing organization. Contingency analysis involves four phases. First, planners assess management requirements—the appropriate management strategy, management processes, values of staff, and organizational structure—implied by the level of innovation in project tasks and the degree of uncertainty in the environment. Second, they assess the management capacity of the proposed implementing organization in terms of management strategy, management processes, ability to adapt innovations and changes, staff values, and organizational structure. Third, they determine the feasibility of the project by comparing its management

requirements with the management capacity of the implementing organization. Finally, when there are large gaps between management requirements and management capacity, they formulate an implementation action plan that either increases the management capacity of the implement organization or reduces the level of innovation to meet existing management capacity, or some combination of both. The following chapters discuss in detail each phase of contingency analysis.

CHAPTER FOUR

Assessing Environmental Uncertainty, Innovation, and Values

CONTINGENCY THEORY holds that different levels of uncertainty in the environment and different degrees of innovation in projects call for different management strategies. These strategies require different kinds of skills, knowledge, and behavior from the members of organizations that will implement the projects. Thus, in order to select appropriate management strategies, planners must understand the environment in which a project will be carried out and the degree of innovative behavior required of those who will implement the project (World Bank, 1983b; Middleton, 1986; Verspoor, 1987).

Environmental Uncertainty

The environment of a development project consists of those external organizations, conditions, or forces that influence the opportunities for its survival and expansion (Nadler and Tushman, 1983). As Paul (1982: 103) points out, "the political, economic and social forces in the country, and attitudes of the beneficiary groups, and key actors external to the program are part of the environment."

An organization must adapt to its environment to achieve its goals and to survive. The critical aspects of analysis focus on the *demands* the environment makes on an organization and the *constraints* it places on organizational action (Nadler and Tushman, 1983). Two sets of environmental factors influence the outcomes of education projects: the socioeconomic environment and the organizational environment. These are somewhat arbitrary labels for interdependent social, political, economic, and administrative forces. Nevertheless, they can help to clarify the discussion of environmental analysis.

The Socioeconomic Environment

The socioeconomic environment in a country consists of economic, social, political, and physical conditions and forces that are likely to affect the level of uncertainty involved in implementing a project successfully.

53

In designing project strategies, therefore, planners should understand the relationships among these factors: for instance, how national economic policies determine the resources that will be available for educational purposes; how different types of educational programs contribute to economic development in a country; and how occupational structures and employment opportunities influence educational requirements. Project designers must be concerned about how changes in macroeconomic policies and trends are likely to affect educational programs in the near future and how social and cultural traditions affect the perceptions of beneficiaries and their attitudes toward education and change. Project designers should also assess various aspects of the education system: enrollment patterns, administrative efficiency, geographic dispersion, student access, and service delivery costs.

These factors are important because the process of school expansion in most countries is a reflection of changing economic, social, and political conditions. Plank (1987) found that the pace and location of school expansion in Brazil since the 1950s, for example, has been closely correlated with the pace and characteristics of social and economic change in various regions of the country. School expansion was strongly correlated with the rate of urbanization, diversification of employment opportunities, changes in occupational structure, and increases in aggregate wealth and per capita incomes. The socioeconomic characteristics of migrants to different areas of the country compared to the existing population had positive effects on school expansion in some regions and negative effects in others. Plank (1987: 369) concludes that "recent educational history suggests that the process of educational expansion in Brazil has been closely associated with a complex array of social and economic changes and with the changing character of public education policies as well." He argues that the different rates of school expansion in Brazilian states reflect a "broader process of economic and social change that encompassed economic growth and shifting political circumstances as well as diversification in employment opportunities, urbanization and internal migration."

The international organizations that fund education reform programs in developing countries give a great deal of attention to economic and physical analysis at the prefeasibility, feasibility, and appraisal stages of the project cycle. World Bank staff, for example, analyze macroeconomic trends, changes in demand and prices, financial performance, transfer payments, inflation patterns, and potential costs, benefits, and financial returns in great detail (Baum and Tolbert, 1985). This attention to economic aspects is important because the economic environment affects projects in many ways. It influences, for example, the stability of counterpart funding, the degree of change in technology and employment, the

complexity of the private-public sector institutional mix, and the capacity of the economy to absorb increases in recurrent costs as innovations become part of the education process.

International funding organizations are also supposed to analyze the social and demographic characteristics of the project's beneficiaries. They are supposed to assess patterns of social organization, the project's cultural acceptability, and the potential for sustained participation by beneficiaries. But in reality social factors often receive much less attention in project appraisals than do economic and financial factors. Relatively little formal analysis is done of political and cultural factors that have profound effects on economic and financial factors and on other dimensions of environmental certainty. These aspects of appraisal, while necessarily judgmental, are central to effective project planning.

Thus, at the design stage planners need to give special attention to the degree of uncertainty in a developing country's political, administrative, and social systems.

Assessment of the Political Environment. Assessment of the political environment is critical at the design stage because the success of education improvement projects requires a high level of political commitment and administrative support. Projects that are in conflict with domestic political priorities, dominant political interests, the perspectives of powerful administrators, or the thrust of past or current government policies are difficult to implement effectively (Cohen, Grindle, and Walker, 1985; Rondinelli, 1983a; Middleton, 1986).

Many education reforms are the result of political changes. When a new regime comes to power—either by revolution or by peaceful political succession—it proposes changes in education policy to satisfy its political constituents and build its base of political support. Often the only way a new minister of education can gain political attention or leave his mark on the system is to propose reforms (Hanson, 1986). A country's project proposals often reflect policies that have evolved from bureaucratic conflicts, and they sometimes engender strong political opposition. Cohen and his associates (1985, 1218) point out that project planners should at least be aware of "(1) the patterns of political penetration of the bureaucracy; (2) the presence and effects of highly polarized interest groups on bureaucrats; (3) the amount of political risk faced by administrators seeking to perform their legal functions; and (4) the degree to which responsibility is fragmented among other agencies and parastatals."

International assistance organizations usually give little overt attention to political assessment. Heaver and Israel (1986) point out that three factors discourage the assessment of political support and commitment in the preparation of projects financed by the World Bank. First, because

analysis of the political situation in a country is difficult and subjective, and because there is no accepted means of assessing it, World Bank staff with technical expertise are uncomfortable doing political assessments. Second, the pressure to lend money for education reforms that are clearly needed can discourage technical experts from including in project appraisals discussions of seemingly intangible complications that could weaken chances that the World Bank's Board of Governors will approve the proposal. Third, the quantitative processes that have been developed for other aspects of project preparation—economic, technical, and financial analyses, for example—can crowd out full consideration of political factors that cannot be easily measured.

Unless planners understand the political environment, however, they may include tasks in a project for which there is little political support, and for which there is little hope for successful implementation. For example, the World Bank's first and second education projects in Colombia supported a complex program of secondary and vocational education reform (Middleton, 1986). Early in project preparation the government wanted to emphasize primary education reform, but World Bank staff thought that the government's proposal was not comprehensive enough. World Bank staff concluded that a comprehensive secondary education project would contribute more to Colombia's development. The bank prevailed, but the project began with only weak support from the government. The Ministry of Education established a semiautonomous agency in the Schools Construction Division to protect the project from political pressures. But this strategy failed. The World Bank staff did not anticipate that when the government changed several times during the implementation of the project there would be almost complete turnover in project staff. Political commitment to the project was so weak that implementation had to be suspended for two years.

The failure to assess accurately the impacts of political instability can also seriously undermine project implementation. The World Bank's second education project in the Dominican Republic, for example, began with four development goals (Middleton, 1986). New Rural Community Learning Centers (RCLCs) were to provide both formal and nonformal education for children and adults; agricultural training centers would provide training for farmers in rural areas; diversified secondary education, initiated during the bank's first project, would be extended to more schools; and vocational training would be expanded and upgraded through the creation of a National Institute for Vocational Training (INFOTEP).

But the project encountered severe implementation problems, delaying completion by four years. Because the government only supported the project passively, it took nearly four years to enact the laws required to establish INFOTEP. During the project the government decided to establish

a massive radio and television adult education campaign with financial support from another international donor, diverting attention from the creation of RCLCs. During eight years of project implementation, the Dominican Republic had four presidents, six education ministers, and eight project implementation unit directors. The longest tenure for any of the project directors was eighteen months. Continuing disagreements and the lack of cooperation between succeeding governments of the Dominican Republic and World Bank staff created a situation in which the bank could not adequately supervise the project. Political instability led government officials largely to ignore the project during the first four years, and the World Bank drastically reduced disbursements.

This uncertain political environment in the Dominican Republic adversely affected project management. The project implementation unit was weak, and the government gave it little support. Salaries were set too low to attract and hold competent staff. Despite requests from the World Bank, the government refused to use project funds to raise salaries. The director of the project implementation unit had low status in the bureaucracy, and, as a result, he had little access to decision-makers and was unable to obtain counterpart funds. The project had to be extended by three and a half years to complete the initial tasks.

Assessing political stability and the government's commitment to a project can be complicated. But Heaver and Israel (1986) suggest a process that can provide at least the basic information necessary to design a project more effectively. This involves:

1. Identifying key actors—those groups or individuals who share common interests and who can influence the project's implementation.
2. Assessing the objectives of key actors—including official objectives and pressures, informal objectives and pressures, and personal objectives and motivations.
3. Assessing the commitment of external interest groups—that is, the support of individuals and groups who can influence the outcome of the project.
4. Assessing commitment in the context of the international assistance organization's operations—that is, determining the degree of consensus between the government and the assistance organization on choice of goals, methods, components, implementing and coordinating agencies, and conditions for obtaining the loan.

After they assess the level of political commitment, project planners can react in a number of ways. They may accept the political conditions and level of commitment that currently exist and adjust the project to

those conditions. They can engage in policy dialogue in order to build stronger commitment through persuasion. They can negotiate to change the implementing agency to assure that the project is managed by an organization with a high level of commitment. Or they can try to use the international organization's financial leverage to gain stronger commitment or greater support from the government.

The Cultural Environment and Staff Values. An organization's effectiveness in implementing an education improvement project depends in large measure on the ability and willingness of the staff to carry out the tasks that the organization must perform. The skills and value-orientations of staff are thus of central importance to management. Value-orientations are perhaps the most important and least considered of the two factors. Skills can be learned quickly, but values change slowly. National cultures differ in important ways, and thus the appropriateness of any management strategy depends in part on how well it fits with the dominant cultural values.

Culture and values operate in two ways. First, over time they shape the ways in which organizations work, conditioning the response of people to patterns of communication, authority relationships, performance incentives, and teamwork. Second, culture and values affect the ways in which individuals respond to change, either in the substance or in the process of their work. Thus organizational structures and management processes should be compatible with cultural traditions and practices. If they are not, either the project must be redesigned to make management strategies compatible with current values, or sufficient resources must be provided to reorient people toward the values required by new management strategies.

The failure of planners to identify, understand, and take into consideration social and cultural factors can seriously undermine the implementation of education reforms. Havelock and Huberman (1977: 225) found that technical advisers and national directors of United Nations funded education projects frequently confronted social and cultural barriers to change. The eighty-one experts they surveyed identified serious problems resulting from conflicting ideologies, unwillingness to share ideas openly, and lack of or inadequate "social harmony" among project team members.

In his study of educational reform in Venezuela, Hanson (1986: 206) discovered that "psychological distance" between central government education officials and local schoolteachers and directors was a serious problem in making educational improvements and routine administrative changes. Public education officials sought to bring about change by modifying organizational structures rather than personal behavior. "Changing job titles, job descriptions, and jurisdictions was the easy part." Hanson

observed; "few officials had the patience to wait for the established norms of conduct, reward patterns, skills, knowledge levels and power coalitions to change in a corresponding manner. Many officials were quick to proclaim the reform a failure, even before implementation of some of the programs had an opportunity to really begin." Not only did few central officials understand the cultural values and behavior patterns of teachers and school directors, but ministry officials with a "centrist mentality" thought that people working in the regions were incapable of taking responsibility for complex tasks.

Hofstede's (1980: 43) studies have shown that management processes and organizational structures are strongly influenced by culture, that is, by the "collective mental programming of the people in an environment." He found four dimensions of national culture that should be analyzed at both the social and the organizational levels: power distance, uncertainty avoidance, individualism-collectivism, and role differentiation.

Power distance is the extent to which people accept and respond to the fact that power in institutions and organizations is distributed unequally. In societies where power distance is small, management processes and organizational arrangements tend to be collegial—superiors and subordinates consider each other to be people like themselves; superiors are usually accessible, and people at different levels tend to interact with each other on the basis of mutual trust.

In societies characterized by large power distances, organizations are usually hierarchical. Management processes are codified in written rules and regulations that subordinates are expected to follow unquestioningly. People tend to interact with each other primarily through formal processes, some of which are based on mutual distrust. In these cultures superiors are often aloof and inaccessible. Their formal positions give them special privileges and powers, and they are judged on their ability to exercise power. Relationships among members of organizations in this type of culture are usually characterized by latent conflict.

Uncertainty avoidance is the extent to which people feel threatened by uncertain and ambiguous situations and try to avoid these situations. Organizations help their members avoid uncertainty by providing career stability, establishing formal rules, and not tolerating deviant ideas and behaviors. Members of such organizations tend to believe in absolute truths and place great value on expertise.

In some societies the large amount of uncertainty in life is more easily accepted. Competition, conflict, and dissent are tolerated and kept within the bounds of fair play, and people are more willing to take risks to achieve their goals. In such societies most people believe that unreasonable rules and regulations should be changed, and they emphasize relativism and empiricism in making decisions. But people who have low tolerance for

uncertainty need consensus. Deviant persons and ideas are considered a threat to authority and stability. There is great concern for security and a strong reliance on rules and regulations as a basis for action.

Individualism-collectivism describes the context that a culture provides for the formation of individual identity and for economic and social welfare. In collectivist societies people's identity is based on the social system and on the families, clans, or communities into which individuals are born. In collective cultures there is emotional as well as economic dependence on organizations and a strong belief in group decisions. Values are determined by group membership and identity. People subordinate their private ambitions to group needs, duties, and obligations. But in individualistic cultures people form their identities on individual standards and accomplishments. They emphasize individual initiative and achievement and strive to achieve goals that they set for themselves.

Role differentiation is the extent to which distinctions are made between "masculine" and "feminine" activities within society. In cultures with weak role differentiation men need not always act assertively and aggressively. Sex roles are not rigidly defined in performing social functions, and a great deal of emphasis is placed on the quality of life. Interdependence is the ideal. Work is motivated by service and empathy for fellow human beings. But in cultures with strong role differentiation men are seen as more assertive and women as more nurturing. Economic roles in such cultures are clearly differentiated by gender and usually more constrained for women. In "masculine" cultures men believe they should dominate organizations and society. In these cultures work is usually motivated by economic attainment and satisfaction by ambitions. Individual worth is judged almost entirely by performance and achievement.

Clearly, the degree to which innovations can be introduced and accepted, and innovative tasks can be carried out effectively, depends in part on the unique combination of cultural characteristics defined by power distance, uncertainty avoidance, individual-collective orientation, role differentiation and other relevant values.

Although the tasks, organizational structures, and management processes that planners choose for education reform projects should be appropriate for the cultures in which they will be carried out, this principle does not imply that project planners should limit themselves to proposing only those changes that are immediately acceptable. Many innovations can be adapted in form or content to fit different cultures and value patterns. In some cases the benefits of change may be great enough to alter culture-bound management strategies sufficiently to allow innovation and experimentation. Innovative tasks are legitimate if they are crucial to educational improvement. But project planners and managers must understand local cultural characteristics before they can reasonably

expect officials in education ministries and school teachers and administrators to adopt innovations successfully. These value orientations, and their management implications, constitute yet another set of contingencies that planners must take into account in designing management strategies for education reform projects (see table 4.1).

Although the sample of countries and individuals that Hofstede used in his research was large, planners should use these categories cautiously and only as indicators of the kinds of value orientations that affect organizational behavior. Different value-orientations create conditions that are more or less conducive to using adaptive and mechanistic management strategies. Cross-cultural research on values is limited, but we hypothesize that societal and organizational values in the first column of table 4.1 are less conducive to openness to innovation, responsiveness to environmental change, and flexibility in adopting change than those in the second column.

The important point that planners must keep in mind is that changing an organization's management strategy requires changing the values of its staff as well. Changing people's beliefs, of course, is difficult and time-consuming. Changes in management processes that bring about changes in behavior over time can often be accomplished more easily, but run a higher risk of failure if the changes conflict with values too strongly.

The Organizational Environment

Education projects not only operate in complex political, cultural, and economic environments, but also in complicated organizational environments. The organizational environment consists of sectoral agencies, institutions, and groups that affect the ability of a project's managers to carry out its tasks and to achieve its objectives. Every organization operates in a dynamic environment that constitutes its "power setting" (Downs, 1967). This environment consists of other organizations that engage in activities directly affecting the project organization: higher-level authorities; suppliers of financial and other resources; allies whose interests are advanced by the success of the reform program or that jointly provide services to beneficiaries; and beneficiaries and "sufferers," that is, groups and organizations whose interests are enhanced or adversely affected by the reforms. It also includes functional and allocational rivals that compete with the project for resources or that perform similar tasks and "regulatees," or the organizations over which the project managers have some control.

For education reform projects the organizational environment may be shaped by a complex set of variables: education sector policies, education system characteristics, and expectations and traditions that influence people's behavior toward education. In addition, the environment may be

Table 4.1 Cultural Value Differences

Hypothesized relationships		
Openness of innovation	Low	High
Responsiveness to environmental change	Low	High
Flexibility in adopting change	Low	High
Power distance	–Large –Hierarchical authority based on position; strong use of rules and regulations –Superiors inaccessible	–Small –Collegial authority based on expertise and experience –Superiors accessible
Uncertainty avoidance	–High –Need for consensus and stability –Aversion to risk	–Low –Competition tolerated –Willingness to take risks
Individualism-collectivism	–Collectivist orientation –High group identity –Strong loyalty to organization	–Individualist orientation –Individual identity –Strong sense of initiative and achievement
Role differentiation	–Male dominant, masculine value society –Strong economic motivation –Strong achievement orientation within context of interdependence	–Weak role differentiation based on gender –Strong service orientation –Achievement orientation modified by sense of common good

Source: Compiled by authors based on Hofstede (1980).

influenced by the management strategies, administrative capacity, and managerial skills within the ministry of education and other government agencies and private organizations that provide educational services, as well as by the characteristics, needs, motivations, and resources of the intended beneficiaries of the project.

The organizational environment and power setting of an education project is usually quite complex. They may involve the ministry of education as a higher authority, or the prime minister's office if the ministry of education is the implementing unit; the ministry of finance from which a project's resources are obtained; other ministries such as health, public works, agriculture, or rural development as allies or joint providers of services, or as allocational rivals. Other important organizations frequently include private education institutions, education commissions, universities, teachers organizations, and parents' groups. If a project attempts to extend educational services through nonformal programs, its organizational environment may include the mass media—radio, television and newspapers; community development groups, private voluntary organizations; and farmers' associations, cooperatives, and youth clubs.

Education improvement projects in Jordan, for example, evolved from the interaction of many organizations with an interest in education policy. Haddad, Coronis, and Demsky (1986: 8) point out that:

> During the decision-making process and the implementation stages, many players with different perceptions and interests were involved. Policy recommendations were made to the Minister of Education by an advisory Board of Education, which consisted of 15 members appointed by the Cabinet and representing the Ministry of Education, the Ministry of Labor, the National Planning Council, the Civil Service Commission, the Ministry of Rural Development, the Youth Welfare Organization, the private sector, parents and teachers. The Board relied on studies and recommendations made by the bureaucracy in the Ministry of Education. Moreover, the planning following any policy decision and the implementation of plans were carried out by the different departments and regional offices of the Ministry of Education, many of whom would not have been a part of the policy-making process.

The first education project funded by the World Bank in Mauritania illustrates the degree to which the organizational environment can affect project implementation (Middleton, 1986). This $4 million project had four major goals: (1) to assess the indigenous Koranic School system, (2) to establish a national vocational training center, (3) to assist the rural extension service, and (4) to improve educational administration within

the country. The education system in Mauritania was organized into separate and independent systems falling under many administrative jurisdictions. The Koranic education system was controlled by local communities and religious leaders. The public education system was controlled by the Ministry of Islamic Affairs and the Ministry of Education. The goals of the project spanned these systems and, through the vocational training component, required the cooperation of employers and trade unions. The project management unit was established in yet another agency, the Ministry of Planning, which was later merged into the Ministry of Finance. The project director was to be the director of planning, but this was largely an honorary post, and the project was actually directed by an expatriate who held the post of deputy project manager. Other expatriate advisers played key technical roles. In addition, teacher organizations, community groups, parent and students groups, and the Islamic Brotherhood, who were concerned with education, attempted to have their views made known to the Ministry of Education.

Because the organizational environment in which it had to operate was so complex, the project encountered serious coordination and procurement problems. Expatriate advisers found it difficult to work effectively in this organizational maze. As a result, the project had three different deputy project managers during the first three years of implementation. Because the project had to rely heavily on expatriate technical advisers, curriculum materials were written in French rather than in Arabic, greatly diminishing their usefulness. The project manager was unable to elicit cooperation from many of the agencies and organizations involved in the education reform program. The project had to be scaled back in scope and was completed three years late.

Planners often fail to understand how proposed changes may affect the resources, power, and authority of different organizations and lead to resistance or opposition to reforms. Hanson (1986: 141) observed in his study of education reform in Colombia, for example, that the "1976 law intended to transfer control over the national secondary schools from the Ministry of Education to the states had still not been implemented by 1984. Such a transfer would have meant considerable loss of power for the ministry as well as the transfer of many individuals from specific ministry units to positions in the states," a transfer that most central government education officials viewed with alarm.

The organizational environment in which educational reforms must be implemented can change drastically over the life of a project. Project designers must know enough about the environment to be able to decide which improvements are likely to be needed by beneficiaries and are likely to be feasible under existing political conditions. They must also understand the environment sufficiently to identify aspects of it that must be

changed if educational reforms are to work effectively. Managers must be able to monitor and adjust to changes in the organizational environment during project implementation.

International assistance organizations attempt to gain some control over the complexities and uncertainties of the organizational environments in which projects are carried out by creating semiautonomous or highly independent project implementation units (PIUs). But innovations developed and tested by PIUs are often difficult to transfer to the educational bureaucracy when the project ends. Often, educational reforms wane after the project is completed and the PIU is disbanded.

International organizations and even ministries of education usually have limited control over the organizational environments in which education projects will be carried out and virtually no short-term influence over the stability of socioeconomic and political environments. But a clear understanding of the environmental forces that create demand for educational change, create the need for reforms, and establish parameters on what will be economically, politically, and socially acceptable can help designers to choose interventions that will be technically and politically feasible within existing environments. The way projects are designed can also influence their vulnerability to environmental changes and instability.

One of the factors that was most important in successfully implementing the program to extend education to rural areas in Mexico during the 1970s, for example, was the care with which interventions were designed to deal with environmental conditions. Paul (1982: 162) points out that the education program developed by CONAFE—the Council for the Promotion of Education—"was a strategic adaptation to the environment, not only in its educational technology, but also in the processes and actions which were incorporated into it." The federal Ministry of Education had a standardized academic program of instruction and was thus unable to penetrate remote, small rural communities with low literacy rates and diverse economic and social conditions. CONAFE, on the other hand, developed a flexible curriculum that could be adapted to widely varying conditions. It used young instructors selected from rural areas, and ensured community participation in managing the programs. Because of the high degree of uncertainty in the environment due to poor logistics and lack of communication, the strong latent demand for primary education and the high costs of operating conventional schools in rural areas, CONAFE had to decentralize its organizational structure to plan and implement its program. It developed methods for communities to share program costs and to mobilize resources from state governments. Had CONAFE ignored these environmental conditions and chosen more conventional interventions, the program would almost certainly have failed.

Of course, not all of the environmental conditions and forces that affect a project can be identified accurately, assessed effectively, or changed. Smith, Lethem, and Thoolen (1980) point out that some elements of the environment can be controlled and project managers can direct, guide, or change them, but others can only be influenced indirectly. Some elements of the environment can only be appreciated: managers cannot control or influence them, but they must understand and monitor them in order to implement their projects effectively.

The challenge for project designers is to obtain reasonable assessments of the complexity and stability of the environment and to propose project management processes and organizational structures that are most appropriate for those conditions.

Complexity and Stability: Indicators of Environmental Uncertainty

Assessing uncertainty in socioeconomic and organizational environments requires considerable knowledge and judgment. But planners can use measures of *complexity* and *stability* to assess environmental conditions. Table 4.2 describes the factors that should be taken into account and some criteria for judging complexity and stability.

Complexity in the socioeconomic environment refers to the number of economic, political, and organizational factors that affect project implementation. For example, a highly diversified economy with a complicated institutional structure of economic planning and management provides a less certain environment than a simpler economy with fewer institutions. The more numerous the formal and informal interest groups, and the greater the ideological differences among them, the more complex and uncertain the environment is likely to be.

The *stability* of the environment—the pace and degree of change—also affects the level of uncertainty. Countries with complex economies, large numbers of institutions and groups participating in decision-making, and ideological diversity are less certain than simpler ones. Uncertainty increases to the extent that these factors are changing rapidly.

Organizational environments also vary in their complexity and stability. The number of institutions—administrative agencies, beneficiary groups, teachers unions and other interest groups—whose behavior directly affects project management is significant, as is the extent and pace of change within them. The larger the number of interest groups and institutions, the larger the number of administrative levels at which the project operates, and the faster the pace of change, the more uncertain the organizational environment is likely to be.

Table 4.2 Factors in environmental assessment

	Complexity	Stability
Socioeconomic environment		
Political-administrative systems	–Number of power groups or stakeholders –Degree of political and ideological differences	–Nature and pace of political change –Impact of political change on administration –Degree of political support for project
Economic systems	–Degree of economic diversification –Extent of free market –Degree of technological diversity –Distribution of income and wealth	–Pace of technological change –Degree economy open to international influence –Pace of change in economic structure
Organizational environment	–Number of beneficiary groups –Economic and social diversity of beneficiary groups –Number and diversity of organizations involved in project –Number and diversity of funding sources –Number and diversity of organizations providing support –Number of administrative levels to which project implementing agency is responsible	–Pace of change in beneficiary relationships with government –Frequency and degree of change in leadership of implementing agencies –Probability of stable funding

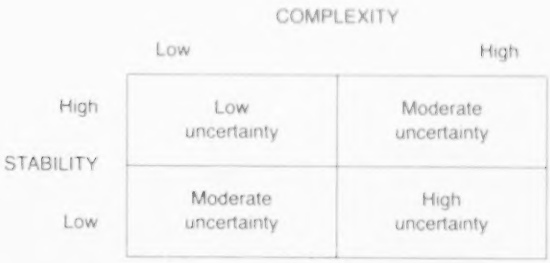


Figure 4.1 Degree of Environmental Uncertainty

Complexity and stability interact to reflect the level of uncertainty in the environment. This relationship is shown in figure 4.1.

Well-established education institutions that have stable funding, few relationships with external organizations, and little political interference operate in relatively certain environments. As stability decreases, because of economic changes or political controversy, uncertainty increases. It also increases with complexity, such as when a new community advisory group is created to provide guidance to school administrators. Either a decrease in stability or an increase in complexity can lead to moderate levels of uncertainty. When both factors change at the same time, uncertainty increases. Unstable funding, political controversy, and increased participation of community groups in school governance have a cumulative and reinforcing effect.

Predictability and Demandingness: Indicators of Innovation

New tasks or new kinds of work require new patterns of behavior from an organization's members. As innovation increases, these requirements increase as well. Planners must remember that innovation is also relative. What is new for one organization or group may not be innovative for others. Thus, they must assess innovation in terms of the current practices of the organization. Table 4.3 summarizes factors and criteria useful in assessing the level of task innovation.

The *predictability* of the outcomes of new tasks is an important measure of degree of innovation. If the outcomes are known by virtue of past experience, innovation is relatively low. If they are unknown, innovation is high. For example, paying teachers on time under current procedures is highly predictable; the only issue is whether the funds will be available. The results of introducing new curricula and teaching practices are difficult to determine and are, therefore, less predictable.

Table 4.3 Criteria for Judging Components of Innovation

	Degree of Innovation	
Dimension	Low	High
Task variety	–Functionally similar	–Functionally diverse
	–Long time required for completion	–Short time required for completion
Task analyzability	–Precise objectives	–Imprecise objectives
	–Linear sequence	–Iterative sequence
	–Control by rules	–Control by performance
	–High division of labor; specialized jobs	–Low division of labor; integrated roles
	–Much guidance from plans and models	–Little guidance from plans and models
Scale of innovation	–Few institutions	–Many institutions
	–Limited geographical coverage	–Wide geographical coverage
	–Few components or elements	–Many components or elements
Degree of deviation in innovation	–Mostly known tasks	–Mostly unknown tasks
	–Mostly current skills	–Mostly new skills
	–Low professional skill requirements	–High professional skill requirements

Predictability rests on two fundamental characteristics of tasks. One is *analyzability*, or the degree to which a task can be reduced to routine steps to be followed by implementors. The other is task *variety*, the sheer number of tasks that differ in the kinds of problems they address and in the skills they require. For example, paying teachers' salaries is done through a clear sequence of administrative steps requiring routine administrative skills, but curriculum reform requires a much larger number of steps, many of which are iterative. Curriculum reform requires many more skills and is likely to encounter more complex problems.

The degree of relative innovation can be assessed by determining the "*demandingness*" of the tasks compared to current practice. This indicator rests on two factors. One is the degree of *deviation* from current practice, that is, the extent to which a task differs from the way things have been done in the past. The second is the *scale* of change, measured by the extent of geographic coverage and the number of institutions

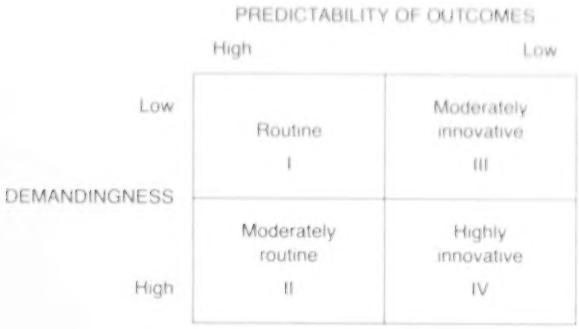


Figure 4.2 Degree of Task Innovation

involved. Adding an extra day to regularly scheduled in-service training for teachers in a few schools is much less demanding than creating new nationwide in-service training programs.

The predictability and demandingness of tasks together determine the level of task innovation, as reflected in figure 4.2. Four prototypical situations with respect to innovation are shown in the cells of the matrix, each defined by a different combination of extreme values of predictability and demandingness. These situations, of course, do not cover all of the possible combinations of values, but they do illustrate four clearly distinguishable cases.

Routine tasks in cell I are those with high levels of predictability and low levels of demandingness. Thus the tasks are easy to analyze and are low in variety. They deviate little from current practice and are carried out on a relatively small scale. An example is a small school construction project managed by an experienced construction unit.

Moderately routine tasks (cell II) are highly predictable. They are easily analyzed and have little variety, but they are highly demanding because they require considerable deviation from current practice, must be carried out on a large scale, or both. Experimenting in a few schools with a new teaching program that has been well developed and tested elsewhere or distributing new textbooks nationwide generally fit this situation. In the first example prior experiments made relatively few tasks easy to analyze. However, the tasks require considerable deviation from current practice for school teachers and administrators, raising the degree of innovation. In the second the repetitive nature of textbook distribution makes task analysis easier, but its extensive geographic coverage increases demandingness and thus the degree of innovation.

Moderately innovative tasks (cell III) have outcomes that are hard to predict but are generally compatible with current practice and restricted

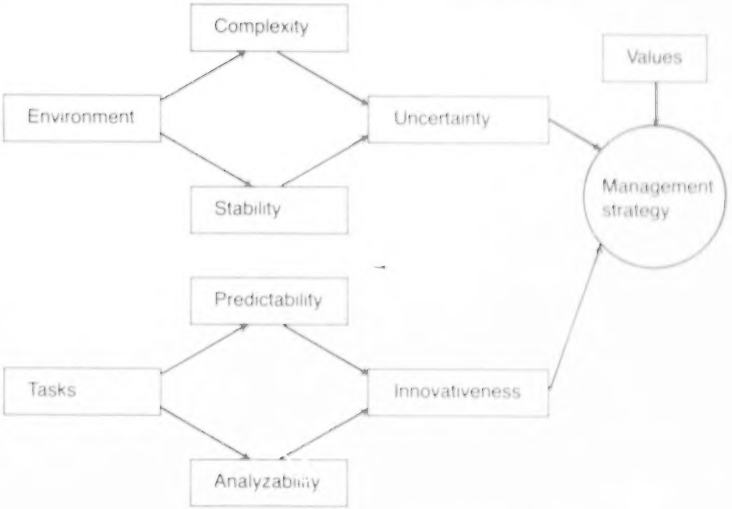


Figure 4.3 Factors Affecting Management Strategy

in geographic or institutional scale. An example is a pilot project to introduce a new procedure for testing student achievement as the basis for promotion in a system where test administration is a well-established part of school practice. Many tasks are involved in test construction and validation. These are moderately difficult to analyze, particularly in terms of the time required, yielding a moderate predictability level. Practices for test administration would change little at the school level; most of the innovation would be in developing and disseminating the tests. The outcomes, however, can be difficult to predict because the new tests could bring negative reactions from parents and other influential constituencies. Parents might perceive them to be an additional and unnecessary hurdle to getting their children admitted to a higher level of education.

Highly innovative tasks (cell IV) are highly demanding and low in predictability. An example is a comprehensive education reform program that seeks to change classroom practices and administrative procedures on a large scale. When reforms introduce a wide variety of new practices that are difficult to analyze, and involve a large number of organizations and levels of administration reaching from community schools to the central ministry, they must be considered highly innovative.

Summary

The three sets of factors discussed in this chapter—environmental uncertainty, task innovation, and value orientations—determine which

management strategy is most likely to be effective for implementing an education reform program. Two factors—complexity and stability—determine the level of environmental uncertainty with which project managers will have to deal. Two other factors—predictability and analyzability—determine the level of innovation in project tasks. The levels of innovation and uncertainty determine the most appropriate management strategy for implementing the project (see figure 4.3).

Contingency analysis can help planners select the management strategy that is most likely to implement an education reform project successfully. Chapter 5 describes alternative management strategies. A management strategy establishes the requirements for management processes and organization structures, which are the topics of chapters 6 and 7.

CHAPTER FIVE

Selecting a Management Strategy

MANAGEMENT PROCESSES and organizational structures are the elements of projects that can be adapted most quickly to different levels of environmental uncertainty and task innovation. Two strongly contrasting patterns of management processes and organizational structures are found in *mechanistic* and *adaptive* management strategies. The ways in which these strategies differ can be seen in table 5.1 (adapted from Hellriegel and Slocum, 1982; Burns and Stalker, 1961; Zaltman, Duncan, and Holbek, 1973). These differences indicate the fundamental characteristics of these two management strategies and the changes that need to take place as an organization moves from a mechanistic to an adaptive strategy.

As they become more adaptive, the management processes shown in table 5.1 become more dynamic, flexible, and responsive to external demands. Different organizational structures are needed to support different management processes. Hierarchical organizations usually use mechanistic management strategies (Hellriegel and Slocum, 1982), but adaptive strategies require organic structures, that is, organizations that are participatory and collegial (Burns and Stalker, 1961).

Mechanistic and adaptive strategies define the poles of a continuum, along which other strategies are located. These have characteristics that allow them to cope with moderate levels of uncertainty and innovation. Four strategies will be discussed in this chapter: mechanistic, open-mechanistic, adaptive, and professional-adaptive. But we emphasize strongly that one strategy is not inherently "better" than another, just more appropriate for tasks with different levels of innovation and uncertainty. Indeed, a single organization or project may need to employ different management strategies for different tasks. For example, relatively routine tasks such as procuring instructional materials or paying teachers will usually require a mechanistic strategy, using formal rules, formal communications, strong controls, and comprehensive planning. Curriculum reform, however, may require an adaptive strategy that is more flexible, incremental, and responsive in order to cope with innovation and environmental uncertainty.

73

Table 5.1 Contingencies in Mechanistic and Adaptive Management Strategies

	Management strategy	
	Mechanistic	Adaptive
Environment	Certain	Uncertain
Tasks	Routine	Innovative
Management processes		
Planning	Comprehensive	Incremental
Decision-making	Centralized	Decentralized
Authority	Hierarchical	Collegial
Leadership style	Command	Participatory
Communications	Vertical, formal	Interactive, formal and informal
Coordination	Control	Facilitation
Monitoring	Conformance to plan	Adjust strategy and plan
Controls	Ex-ante	Ex-post
Use of formal rules and regulations	High	Low
Basis of staffing	Functions	Objectives
Structures	Hierarchical	Organic
Staff values	Low tolerance for ambiguity	High tolerance for ambiguity

The relationship between environmental uncertainty and innovation defines the suitability of a management strategy. The relationship is shown in figure 5.1, which illustrates some of the hybrid versions of mechanistic and adaptive management strategies. In reality, of course, even these four prototypes are simplifications. However, they do indicate the ways in which mechanistic and adaptive strategies can be combined to meet the requirements of innovative tasks and uncertain environments (Hage and Finsterbusch, 1987).

Mechanistic Management Strategy

Education projects that have *routine tasks* and that can be carried out in a relatively *certain environment* can usually be implemented satisfac-

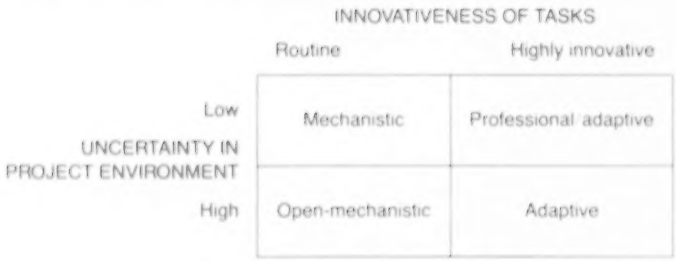


Figure 5.1 Alternative Management Strategies

torily by a mechanistic strategy, using hierarchical organizations and bureaucratic management processes. The administration of routine services under legislative or other legal mandates continues to be an important function in education ministries in all developing countries (Cowen and McLean, 1984). Many of these tasks fit well with a mechanistic strategy.

Bureaucracies evolve in all societies to achieve a high degree of efficiency and effectiveness in carrying out routine activities by standardizing tasks and decision-making into rules, regulations, and procedures to which everyone within the organization must conform (Thompson, 1961). They establish clear and consistent technical, legal, and procedural criteria for distributing goods and services and for ordering relationships among their members. A mechanistic management strategy allows an organization to secure a high degree of stability, continuity, and predictability in production and distribution.

Bureaucracies do this by translating their goals into narrow and specifically defined sets of subgoals and by breaking these subgoals down into routine procedures. Bureaucracies define jobs in such a way that they can be filled interchangeably by anyone with the requisite skills. Each unit within a hierarchical organization is then assigned a specific set of subgoals and tasks for which work can be carried on through standard operating procedures. Organizations using mechanistic management strategies attach greater importance and prestige to internal rules and regulations than to general knowledge, expertise, and skill. The behavior of workers and managers tends to be evaluated by those rules and regulations (Hage and Finsterbusch, 1987).

A mechanistic management strategy may be quite appropriate for administering many tasks—such as paying teacher salaries, distributing textbooks, and collecting enrollment statistics—that are necessary to operate large education systems. But the very characteristics that allow a

mechanistic management strategy to be effective in carrying out standardized, routine tasks in a stable environment are usually obstacles to implementing innovative reforms. One reason is that bureaucrats tend to adopt patterns of behavior that Thompson (1961: 16) labels "formalistic impersonality." This behavior expresses itself in a number of ways. First, Thompson points out that "in interpersonal relationships, total involvement probably never occurs. Each person is concerned with somewhat less than all of the actual or potential needs of the other. In specialist relationships, involvement is limited to the needs for which the specialized function is relevant." Moreover, in order to maintain efficiency and objectivity in distributing services, bureaucracies tend to classify clientele into categories and to deal with all clients in the same category in the same way.

Education bureaucracies rely heavily on formal, impersonal rules and regulations because they provide protection and help the organization to avoid risk (Rojas, 1984). Benveniste (1987) points out that rules and regulations also allow bureaucrats to depoliticize decisions, to exclude more easily people who do not qualify for services by standard criteria, to reinforce their own positions of authority, and to limit the discretion of subordinates.

In his study of education reform in Venezuela, Hanson (1986) discovered that the Ministry of Education's highly bureaucratic approach to management created "psychological distance" between central government education officials and local school teachers and directors. Over time the ministry's mechanistic management strategy created serious problems both in making changes and in carrying out routine tasks. Reforms were not successful because central government education officials tried to introduce changes by restructuring organizations rather than by changing the behavior of teachers and administrators. "Changing job titles, job descriptions, and jurisdictions was the easy part," Hanson (1986: 206) observes. But few officials saw the need, or had the patience to wait, "for the established norms of conduct, reward patterns, skills, knowledge levels and power coalitions to change in a corresponding manner." He contends that "many officials were quick to proclaim the reform a failure, even before implementation of some of the programs had an opportunity to really begin." Not only did officials in the ministry not understand the cultural values of local teachers and school directors, but those with a "centrist mentality" thought that people working in the regions were incapable of taking responsibility for complex tasks.

Over time education ministries—like most bureaucracies—begin to invert ends and means. Bureaucrats become more concerned with maintaining and conforming to standard operation procedures. They become less sensitive to the changing needs of their clientele. Indeed, within

organizations using mechanistic management strategies there is usually strong resistance to change. Routinization and specialization create inertia. Serious "performance gaps" must become apparent before change can occur in bureaucracies. Vast amounts of information or strong external pressures must be brought to bear, and a great deal of consensus must develop, before bureaucracies begin to act on "knowledge" rather than by rules (Downs, 1967).

Open-Mechanistic Management Strategy

Ministries of education sometimes change their management strategies when they are faced with implementing *routine projects* in highly *uncertain environments*. Large-scale school construction or textbook distribution programs that must be coordinated through four or five different ministries or agencies and in cooperation with large numbers of school districts in countries with low levels of political stability and weak economies are not unusual. In these situations organizations implementing reform projects must give increased attention to monitoring changes in the environment. They must respond to the interests of a large number of participating organizations and anticipate economic and political changes, while maintaining direction and control over relatively routine activities. An "open-mechanistic" strategy maintains hierarchical authority and central control over decisions, but it also seeks to reduce uncertainty by increasing the flow of information about the environment. It can also cope with environment more effectively by giving lower-level units in the organization more discretion in carrying out their tasks and in adjusting to changing local conditions.

One means of implementing education reform projects using an open mechanistic strategy is to deconcentrate organizational structures and management procedures (Rondinelli and Nellis, 1986). Experiments with deconcentration have been tried recently in several Latin American countries including Costa Rica, Venezuela, Peru, Mexico, and Colombia (Cowen and McLean, 1984; Rojas, 1984; Hanson, 1986).

In nonformal education programs sponsored by the World Bank in Thailand, deconcentration of administrative responsibility to regional, provincial, and district organizations allowed managers to respond more effectively to both the goals of the program and to the policies of the Ministry of Education. It helped them to identify "target groups" more easily. They were able to propose projects that more closely met the requirements of different communities in their districts or provinces and to make curriculum content more relevant to community needs and desires (Hugkuntod and Tips, 1987).

Downs (1967) emphasizes that bureaucracies tend to become more

open to change as their environments become more turbulent. Rapid changes in the environment or higher levels of environmental uncertainty tend to generate more frequent "performance gaps." A performance gap is the difference between the *actual* and the *satisfactory* level of performance within an organization. Performance gaps create dissatisfaction within the organization or among external groups that have influence or control over it. They create pressures to look for more effective ways of doing things. Three types of environmental changes can create performance gaps: first, shifts in the social value of the organization's functions; second, external technical changes affecting the nature of its functions; and third, changes in the organization's power setting or political relationships.

Changes in an organization's environment force it to open itself up in order to understand the changes that are taking place, to monitor those changes, and to search for different ways of performing important functions. But open-mechanistic management strategies are limited in their ability to deal with innovation. March and Simon (1958) argue that, in most bureaucracies, managers will search for alternatives only until they find those that return the organization to a satisfactory level of performance. They will usually restrict their search initially to those factors directly under their control. If a satisfactory solution is not found, they direct their attention to other factors—usually external ones—that are not directly under their control. And finally, they turn to alternatives that change or relax the performance requirements on the organization.

Moreover, the long tradition of centralized control in most ministries of education in developing countries makes officials reluctant to give up power even after a ministry is formally decentralized. The limitations of open-mechanistic management strategy were apparent in the attempt to deconcentrate the administration of education in Peru. The magnitude and scope of change in education at the local level were highly constrained by the Ministry of Finance's strong control over the education budget and its power to review and approve regional expenditures (Rondinelli and Wilson, 1987). The Ministry of Education also retained tight control over administration and the allocation of financial resources to nucleos. Periodically, officials in the Ministry of Education attempt to recentralize functions by weakening or abolishing nucleos in some regions (Schiefelbein, 1985).

Adaptive Management Strategy

The limitations of mechanistic management strategies and the strong emphasis on funding innovative education projects are leading international assistance organizations to examine adaptive management strat-

egies more seriously. Most education reform projects cannot be carried out in routine fashion by bureaucratic organizations. Projects promoting social change involve high levels of uncertainty and ignorance about what is likely to work best for different groups of people and about how they will react to innovations. Evaluations of World Bank (1983a: 88) projects find that "these uncertainties are combined with less management control, since success depends on stimulating people's voluntary participation." They conclude that successful implementation depends on "experimentation, flexibility, and a willingness to work closely with program beneficiaries to learn about, and respond to, local needs."

Adaptive strategies are needed, Benveniste (1987: 10) contends, in "(1) situations where we do not really know what the problem is, situations of goal vacuum; (2) situations where we know what is to be achieved but we are not sure how to proceed—that is, the technology is not clear; and (3) situations where we know what our goals are, we know much about the ways to achieve desirable outcomes, but the tasks are so varied and changing that constant adoption is needed."

Education projects with highly *innovative tasks* that must be implemented in an *uncertain environment* require an adaptive management strategy. Many of the projects sponsored by international assistance organizations involve complex nationwide school reforms that must be implemented in countries with unstable political or economic environments. Studies of education projects in both more and less developed countries conclude that these innovative reforms are most successfully implemented when broad guidelines from central governments are refined and modified at the school level after discussion, bargaining and compromise, before and during implementation (Berman and McLaughlin, 1978; Crandall et al., 1983; Miles, 1984; Verspoor, 1988). Using an adaptive strategy, the implementing agencies may design and promote programs for change, but the ultimate implementors—teachers, principals, and school district directors—react with ideas and proposals for adaptation and refinement, which they consider in light of specific local conditions, existing classroom routines, and early implementation experience.

The concept of adaptive management draws heavily from theories used in the private sector under the labels strategic planning, open-processes management, and organization development (Lawrence and Lorsch, 1967; Ansoff, 1965; Burke, 1982; French, Bell, and Zawacki, 1983). In the field of international development the strategy draws upon aspects of institution-building (Esman, 1972), strategic management (Paul, 1982), transactive planning (Friedmann, 1973), and the "learning process" approaches (Korten, 1980; Rondinelli, 1983a).

All of these theories advance the principle that innovative projects must be planned and managed in flexible and responsive ways. An adap-

tive strategy for planning and management is based on experimentation and learning. It seeks to join action with learning and to move incrementally toward effectiveness and efficiency through the accumulation of knowledge about the environment in which the project will be implemented and the people who will benefit from it. Major tasks and functions are defined through interaction among those who will be involved in or affected by the project. An adaptive strategy is flexible. Plans and actions respond to changing environmental conditions and unanticipated consequences during implementation. Managers attempt to facilitate rather than control. They create incentives for participants to change behavior or to interact effectively to achieve mutually beneficial objectives (Rondinelli, 1982).

An adaptive strategy uses incremental rather than comprehensive planning. Therefore, it requires "organic" structures—collegial or participatory organizations that encourage creativity, responsiveness, learning, and adjustment rather than simply applying standard operating procedures (Burns and Stalker, 1961). It depends on project managers and staff with a strong commitment to change as well as competent technical and managerial skills, and it requires coordination through exchange and mutual adjustment rather than through central direction (Lindblom, 1965). An adaptive management strategy strengthens the administrative capacity of local institutions to sustain the beneficial impacts of change and to strengthen the beneficiaries' ability to solve problems on their own after international funding ends.

Moreover, an adaptive strategy requires "error management" (Benveniste, 1987). Because creativity, learning, and adaptability arise from situations in which errors and mistakes are tolerated, the organization using adaptive management must be willing to accept some degree of risk of failure. It must allow new approaches to be tried and errors to be made, but managers must also be able to set parameters on or establish tolerance levels for error.

Where education projects have been carried out in an adaptive and incremental way in developing countries, this strategy was an important factor in their success. A World Bank funded project to improve science and technology curricula in secondary schools in Senegal, for example, was successful precisely because it was implemented adaptively, although it had not been planned that way (Verspoor, 1988). In the initial stages of implementation the project encountered severe management problems because it had been planned hastily and because activities became bogged down in bureaucratic procedures. In its early stages the implementation of the project was plagued with problems: delays in the appointment of architects to design Science and Technology Centers (STCs), difficulties in drawing up equipment lists and procuring equipment, lack of commit-

ment to the project by the government, and difficulties in testing curricula.

But after the STCs were constructed and technical assistance experts arrived to assist with implementation, they introduced a more flexible, incremental, and participatory approach to designing curriculum changes and to training teachers. This approach received more support from teachers, STC directors, and feeder-school directors. Curriculum innovations were introduced gradually and adjustments in the curriculum reflected experience in the classroom. Commitment to the project grew with its success. Staff responded well to being part of a successful program and senior ministry officials began to give the project more support. By 1985 the STC program had gradually become a permanent part of Senegal's school system. More than 7,500 students, or about 30 percent of those in grades nine and ten, participated in the program.

The success of diversified education projects in Thailand can also be attributed to the incremental and adaptive strategy followed by the World Bank and the government (Verspoor, 1988). Six World Bank loans to the government of Thailand—from the late 1960s to the early 1980s—were conceived as incremental attempts to strengthen the education system. The projects supported curriculum development, teacher training, project management, general administrative training, program evaluation, and supervision. Each stage of implementation was based on and modified by lessons learned from preceding projects.

The projects were successful in providing about half of all secondary schools with equipment and staff training to implement a diversified curriculum. Equipment provided by the projects was adequate and appropriate to local needs, and all schools made full use of their practical facilities. As a result of the projects, enrollment rates for secondary education increased, overall promotion rates increased, and drop-out and repetition rates fell. The projects increased by 50 percent the number of graduates who chose further studies in technical institutions. Secondary school diversification was institutionalized and is expected to be sustained within the Thai school system.

Diversified curricula were tested in a small number of schools initially (Haddad and Demsky, 1987). This gave the Thai government the opportunity to determine the level of support, and to build demand, for the policy. And because the pilot projects were relatively small, the changes were not controversial and did not generate substantial opposition or adverse reaction. Only after the policy was proven successful in pilot and demonstration projects did the government expand the policy to the national level by increasing the number of schools involved in successive projects. The incremental process of implementation allowed "learning by doing." Changes were made in each project based on experience from

previous ones. The government experimented with different approaches to diversified education in urban areas and rural areas. Teachers and community leaders were involved in each stage of the process. Changes were made in curricula, facilities, and equipment as experience was gained from earlier pilot projects. The government actively marketed the innovations and sought support for each phase of the reform.

Professional-Adaptive Management Strategy

Frequently, international assistance experts prescribe education reform projects with highly *innovative tasks* in countries with relatively stable and *certain environments*. The projects are often implemented by bureaucratic ministries or agencies. The high degree of innovation requires a significant increase in the use of new practices and technologies, increasing the need for information, responsiveness to clientele and decentralization of authority and resources. The ability to coordinate with other organizations and with beneficiaries is crucial to their success and some amount of learning by doing is essential. Such projects must draw on a variety of technical and professional skills (Bedeian, 1984).

In situations where changes must be brought about on a large scale in an environment that is quite stable, diversity in outcomes may be less tolerable to the implementing organization and professional adaptive management is a way of reducing that diversity. In situations such as this the organization managing innovative tasks must switch from a mechanistic to a somewhat adaptive strategy. Governments must often create special organizations that are outside of the regular bureaucracy in order to implement large-scale education reforms. This is what the government of Mexico did in creating the Council for the Promotion of Education (CONAFE) to extend education to rural areas (Paul, 1982).

Often, the government forms special task forces or semiautonomous project management units, or it separates the highly innovative tasks from those that are more routine and allows the former to be implemented by special organizational units within the Ministry of Education. The unit consists of professionals who can deal with the technical issues of innovation, operating with at least some of the characteristics of adaptive management; hence the term "professional-adaptive."

For example, at the beginning of the 1980s the minister of education in Costa Rica used a professional-adaptive strategy to formulate and implement administrative innovations. She appointed a special team of educators, political representatives, university professors, and education administrators from both inside and outside of the Ministry of Public Education to make recommendations concerning regionalization. She also created thirty-two study groups composed of educators and private citizens from

different areas of the country to examine issues related to regional administration.

The philosophy behind the reform process required a professional-adaptive approach (Rojas, 1984). Most members of the team believed that widespread participation was essential to develop recommendations for change that would be acceptable to the ministry, the Superior Council of Education, the major political parties, the teachers' unions, and local school administrators and teachers. They considered the *process* of formulating and implementing reforms as important as the actual recommendations for change. They thought that the quality of the recommendations and their political feasibility depended on eliciting the knowledge of professionals, and the views of those who would be affected by the reforms, and on involving them in the process of formulating the changes.

Most officials in the Ministry of Public Education did not espouse this participatory process or welcome suggestions for change. The minister knew that if significant changes were to be made in the structure of education administration, recommendations would have to come from professionals and citizens through a process that was more flexible and open than the ministry's usual evaluation and review procedures.

A professional-adaptive strategy is needed in situations in which problem-solving requires more than routine procedures. Implementing innovative tasks, even in relatively stable environments, requires organizational structures that are open and participatory and management processes that are flexible and learning-based. But the tasks may not be entirely experimental and, as was the case in Costa Rica, may only be modifications of or adjustments to existing practices and procedures. Their implementation depends on some combination of specialized skills and knowledge, experience, judgment, and professional authority. In any case, Benveniste (1987: 56) points out that "professional management is inevitably messy. . . . Creativity takes place in learning situations. Learning situations require autonomy, discretion, and motivation. They also require the possibility of making mistakes and learning from them." These requirements are usually difficult to meet in bureaucratic organizations unless they can create special units that allow their members to use professional-adaptive management strategies.

The characteristics of most organizations that use professional-adaptive strategies, Benveniste (1987: 162) observes, are: (1) decentralized decision-making, through which a good deal of discretion is given to professional staff about how to carry out professional tasks; (2) fewer layered hierarchies in which the organization has a smaller number of levels of administration and control; (3) "loose coupling" among levels, that is, enough autonomy given to units and individuals to allow innovation at all levels of the organization; and (4) orientation to broad profes-

sional and organizational values rather than only to internal rules, regulations, and controls.

Professional-adaptive management strategies must deal with two distinct sets of operations (Benveniste, 1987). First, the organization must have management processes that give sufficient discretion to professionals to carry out professional tasks without undue interference or control by the bureaucracy. Second, the organization must have an authority structure that allows professionals to share in some managerial responsibilities that have professional implications. This requires leaders of organizations using a professional-adaptive strategy to establish controls that assure efficient and effective operation while allowing professionals to exercise a maximum amount of discretion in performing professional functions.

In situations where the economic, social, and political environments are relatively stable and certain, professional-adaptive management strategies can be used to apply a combination of the best features of mechanistic and adaptive management strategies to the innovative tasks of education reform.

Summary

In brief we contend that two sets of factors—the degree of environmental uncertainty and the level of innovativeness in tasks—influence the type of management strategy that is most appropriate for implementing education reform projects. Routine tasks, or those requiring only a low level of innovation and change, that are to be carried out in relatively stable and certain environments can usually be implemented using a mechanistic management strategy. Innovative tasks that must be carried out in uncertain environments, however, require an adaptive management strategy that uses quite different management processes and organizational structures. When a project with routine tasks must be carried out in an uncertain environment, an open-mechanistic management strategy is most appropriate. When a highly innovative project must be carried out in a relatively certain and stable environment, it requires a professional-adaptive strategy.

Selecting a management strategy that is consistent with specific levels of uncertainty and innovation allows project planners to establish an ideal pattern of management processes for implementing tasks. Each management strategy illustrated in figure 5.1 requires managers with appropriate values. To take an obvious example, adaptive management requires high levels of tolerance for uncertainty. To the extent that the values of members of an organization support a particular management strategy, the potential for effective action is high. To the extent that there are significant

discrepancies, such as the assignment of innovative tasks demanding an adaptive strategy to an organization whose members fear uncertainty and avoid risk, an education reform project may not be implemented effectively unless the organization can change its members' values, attitudes, and behavior.

We discuss the management processes associated with each of these management strategies and the factors that must be examined in assessing management capacity in more detail in chapter 6.

CHAPTER SIX

Assessing Management Capacity and Needs

EVALUATIONS OF education projects funded by international assistance organizations consistently find serious problems of implementation caused by poor management. In a review of the performance of education projects in sub-Saharan Africa, for example, Auerhan and his associates (1985) found severe weaknesses in the management capacity of education ministries to implement projects effectively. Education ministries lack qualified specialists in financial management, education programming, project design and implementation, statistics, educational research, business management, and educational administration. Moreover, the physical infrastructure needed for managing the education system is inadequate in both central and provincial offices. Data processing and office equipment and vehicles are either unavailable or in short supply. Finally, ministries lack the information needed for efficient management and planning; most do not have adequate library or documentation services. Similar weaknesses undermine the management capacity of ministries of education in other regions of the world.

Education reform projects encounter serious implementation problems if planners fail to assess the management processes of the organizations that will implement them. For example, although seven World Bank missions were involved in preparing the technical aspects of the first World Bank-funded education project in Honduras, inadequate assessment of management capacity led to serious implementation problems (Middleton, 1986). The staff of the implementing organization was not experienced in contract administration. Part-time teachers completed equipment specifications with unsatisfactory results. Changes in the site for a major institution to be constructed by the project resulted in a thirty-month delay. The small project implementation unit staffed with part-time employees had no power and little influence over other organizations involved in implementing the project. Thus, it could not cope with the numerous management problems the project encountered.

Education projects in Peru were plagued with similar implementation problems. Haddad, Goodman, and Gorman (1986: 19) point out that early attempts to reform the education system were delayed and projects had to be modified. Even the modified projects overran their completion schedules, however, "due to a combination of factors including management weaknesses, staff turnover, unavailability of counterpart funds and insufficient field supervision." The Ministry of Education did not have adequate management processes for letting contracts and "months of delay resulted from the mutual lack of understanding of the complex laws and regulations by both the World Bank and the government."

Experience with implementing these and other education projects suggests that management processes will be coherent and effective only if they are compatible with the environment in which they must be carried out, the level of task innovation, and organizational values. The success of the World Bank-funded textbook improvement project in the Philippines, for example, can be attributed primarily to the high level of managerial competence in the Textbook Board. The board had adequate numbers of staff, flexible management processes that allowed changes to be made as experience was gained during implementation, and arrangements to upgrade the staff's professional competence. In an assessment of the project Searle (1984) points out that Curriculum Development Centers recruited specialists for research and writing. The Textbook Board developed and tested a cycle of textbook development. Responsibilities were carefully assigned to authors, editors, copy editors, graphic artists, and other production specialists. The management processes were adjusted as the implementing agencies learned from experience, resulting in the production of progressively better textbooks throughout the life of the project.

The fit among environmental conditions, innovativeness of tasks, and management processes is extremely important: without coherence procedures will work against one another, skills will be wasted, and effectiveness and efficiency will both suffer. The most important management processes for implementing education projects are: (a) planning and decision-making; (b) leadership; (c) communication; (d) coordination; (e) monitoring, control, and evaluation; and (f) staffing (including personnel management and human resources development). The nature of these processes differs significantly with different management strategies. We discuss the characteristics of management processes for mechanistic and adaptive strategies in this chapter. These characteristics form another set of contingencies that planners must take into consideration in selecting management strategies. We give more emphasis to adaptive processes in this chapter because adaptive management strategies seem to be most appropriate for education reform projects.

Planning and Decision-Making

Planning and decision-making are the principal processes through which managers use authority to achieve objectives and solve problems. Informed by and using other processes (such as leadership, authority, communication, control, and coordination), planning and decision-making processes both have significant influence on the others—and thus on the way that organizations function. *Planning* is a formal process of decision-making. *Decision-making* involves choices about directions for the future and about immediate actions needed to ensure the efficient and effective operation of an organization.

Managers use two forms of planning: strategic and operational. Through *strategic planning* managers make decisions about how an organization can achieve its objectives most effectively within its socioeconomic and organizational environments. They use strategic planning to adjust to different degrees of environmental turbulence and to position the organization favorably to achieve its goals. In the private sector firms cope with uncertainty through strategic planning and management by investing in good environmental forecasts, by creating contingency plans to limit exposure to adverse risks and losses, by progressively revising strategy, and by creating capacity within the organization to react rapidly to new opportunities brought by environmental changes (Ansoff, 1965). In the public sector administrators engage in strategic planning by attempting to discern changes in policies, political priorities, and public demand and support for change and to adapt their programs accordingly.

Under conditions of relative certainty and low innovation, managers focus strategic plans on improving productivity and efficiency in providing goods or services. This can take the form of long-term contracting for goods and services, investing in institutional research aimed at productivity improvement, training, or making improvements in the work force.

Operational planning is closely related to, and flows from, strategic planning. Managers make operational plans that focus on the details and processes for implementing strategies and on decisions about communications, coordination, budgeting, resource allocation, programming, procurement, contracting, maintenance, and monitoring. In organizations that use mechanistic management strategies, operational plans seek greater efficiency and effectiveness in carrying out tasks. Those using adaptive strategies make operational plans to improve the organization's responsiveness to changes in the environment and to put innovations into operation more effectively. Table 6.1 describes contingencies in planning and decision-making for the four management strategies discussed in chapter 5.

Table 6.1 Planning and Decision-Making Contingencies

	Management strategy			
	Type I Mechanistic	Type II Open-mechanistic	Type III Professional-adaptive	Type IV Adaptive
Strategic planning				
Approach	Comprehensive	Contingent	Incremental	Incremental
Information flow	Top down	Top down, some external input	Interactive	Interactive, much external input
Time frame	Long range	Long-medium range	Medium-short range	Short range
Operational planning				
Basis for budget allocations	Functions or divisions	Functions or divisions	Functions and objectives	Objectives
Budget planning process	Top down, inflexible	Top down, some flexibility	Top down and bottom up, some flexibility	Interactive
Delegated authority for expenditures	Very low	Low	Moderate	High
Scheduling	Long-term	Moderately long-term	Moderately short-term	Short-term
Decision-making				
Locus	Highly centralized	Deconcentrated	Partially decentralized	Highly decentralized
Participation	Very limited	Low	Moderately high	Very high

Mechanistic management strategies can be quite effective when the tasks to be carried out are not very innovative and when the environment is stable. Well-understood and predictable tasks and high levels of confidence that things are not going to change very much permit comprehensive, long-term planning. Managers can set objectives, determine the best means of achieving them, and issue orders to subordinates. They can exert control over activities. Information can flow from the top to the bottom of the organization. The lack of uncertainty reduces the need for upward flow of information and for decentralized decision-making. Under these conditions planning and decision-making processes can assume the characteristics described in the left-hand column of table 6.1.

As innovation and uncertainty increase, management processes must become more adaptive. Many of the problems that arise under such conditions are open-ended (Lloyd, 1978); they cannot be solved using routine, systematic methods of analysis because the boundaries of the problems may change as they are studied and analyzed. Solving such problems requires creative thinking, which cannot be controlled (Rickards, 1974). Moreover, the problems may not have unique or definitive solutions in the conventional sense. Or the solutions may be outside of the bounds of logic, that is, their efficacy can neither be proved nor disproved a priori. Formulating solutions to open-ended problems depends more on learning, interaction, and discovery than on systematic analysis and planning. It often requires sustained trial and error and informal, incremental, and qualitative observation rather than quantitative, formal, and detailed analysis.

Because projects promoting changes in education are usually complex and uncertain, adaptive management strategies rely on incremental rather than comprehensive planning. The government of Thailand, for example, like governments in many other countries, chose among education reforms through a process of elimination rather than through comprehensive analysis and planning. Haddad and Demsky (1987) point out that in its early program of education reform the Thai government had to choose among three major options for improving secondary education. The government's objectives were to reform what had become an elitist and highly academic secondary school curriculum by improving internal and external efficiency and increasing access to educational resources in a more equitable manner. Policy Option A was to continue the present system of college preparatory and vocational streaming. Option B was to modify the system to improve external efficiency without changing the content of the system. This could be done by reducing the relative importance of the college preparatory curriculum while greatly increasing vocational secondary education. Option C involved developing comprehensive secondary

schools in ways that would allow students to take practical subjects within their general education program.

Government officials never systematically and comprehensively compared these options, but rather evaluated them in an ad hoc manner. Haddad and Demsky (1987: iii) found that:

> Option A was rejected because the existing system was not adequately meeting the present and projected manpower needs of the changing Thai economy. Option B was rejected because government officials knew that vocational education was regarded as inferior to academic education, which meant that demand did not exist; it was felt that vocational education was not effectively training students for employment and it would be too costly. Option C was considered desirable because earlier pilot programs had shown comprehensive schooling could be successful, because the prevailing international educational ideology supported such an approach over a dysfunctional academic model, and because it would provide an education better suited to local conditions and thereby make some impact on rural development. Option C would be implementable because it could draw upon the experience of the earlier schools and it would be more affordable than greatly increasing the places in vocational streams. . . . The multiple rationalities of the different actors coalesced into a decision by the Thai government to choose policy Option C.

Planners who use an incremental approach focus on solving remediable aspects of known problems by identifying courses of action that move away from unsatisfactory conditions, even when "optimal" or ideal goals cannot be agreed upon, and by exploring alternatives on which diverse interests can act jointly. It focuses on courses of action that produce gradual changes in existing conditions. This makes the task of analysis and planning more manageable in complex, uncertain, or rapidly changing environments. Through incremental planning managers seek interventions that will set other changes in motion and examine goals in close connection with values and means to achieve them (Lindblom, 1975).

In organizations using an adaptive management strategy, managers delegate authority and responsibility for decision-making to the lowest possible level because the people performing the work usually have the most knowledge about how to do it most effectively. For the same reasons they elicit the staff's participation in planning and decision-making. Although top managers set the organization's objectives, they allow staff to participate in the process and give them the freedom to reach those objectives in their own ways. In such organizations managers tolerate trial

and error. Thus, decision-making is spread throughout the organization, and staff are expected to take the initiative in identifying and correcting problems (Gold, 1982).

Leadership and Authority

Effective management depends on strong and committed leadership from project managers and staff. Leadership, in turn, depends heavily on the effective and appropriate use of authority. Patterns of leadership and authority differ significantly in mechanistic and adaptive management strategies.

One importance lesson of experience with implementing internationally funded development projects is that leadership and commitment are often the key factors in their success or failure (Paul, 1982). In their review of experience with education reform projects funded by the United Nations, Havelock and Huberman (1977: 16) conclude that "from countless studies and interviews comes the consistent theme that innovations must receive support from leaders in order to survive. . . . This support must be more than formal or legal: it must be active." The leaders provide support by advocating the innovation in public, by attending demonstrations and visiting classrooms, and by using their influence to make sure that the message is spread through the media.

International funding institutions often overlook or discount the critical role of leadership when they design development projects. But Haddad, Coronis, and Demsky (1986: 28) describe the critical impact individual leaders can have on the outcome of a project in their evaluation of the comprehensive education project in Jordan. They found that decisions about introducing the General Vocational Secondary School (GVSS) program were not made on the basis of objective studies; rather, "individuals compelled by their own perceptions of the problem, their backgrounds and their professional biases, played a significant role." The Project Implementation Unit of the Ministry of Education over time became the center for rethinking education policy and setting the direction for change in Jordan. As this occurred "the personality and background of its director became paramount."

The successful implementation of education reforms in Jordan turned at critical times on the strength of leadership of the PIU managers. All three directors had to protect the comprehensive secondary school innovation program and fight for changes in vocational education.

Experience with other education projects suggests that leaders must play a variety of crucial roles. Among them are disseminating information about the project, decision-making, entrepreneurship, conflict resolution and negotiation, resource allocation, problem solving, and technical re-

view of project activities. How and in what combination managers perform these leadership roles depends on the nature of the tasks to be accomplished, organizational characteristics, influences from the external environment, and the individual characteristics of the manager (Mintzburg, 1980; Brinkerhoff and Klauss, 1985).

Adaptive management strategies require leaders who can facilitate interaction and learning. They must create the conditions that allow project staff to carry out tasks efficiently and effectively and to adjust those tasks to environmental changes during implementation. The most effectively designed and efficiently organized projects can founder on weak leadership, but strong leaders can often overcome adverse effects of poor design and weak organization. Beneficiaries' acceptance of and support for projects often depends on their perception of the motivation, commitment, and responsiveness of project leaders (Rondinelli, 1986).

Leaders influence results through the appropriate use of authority. Simon (1957: 125) has defined authority as "the power to make decisions which guide the actions of another. It is a relationship between two individuals, one superior and the other subordinate." There are five bases of authority (French and Raven, 1959): (1) *reward power*, which is the possession of benefits or rewards that others want and are willing to do something to attain; (2) *coercive power*, which is the possession of resources that can be used to punish or deprive others of benefits and that others are willing to do something to avoid; (3) *expert power*, which is the possession of information that others will do something to acquire; (4) *legitimate power*, which is the possession of authority associated with a position or role that others accept as the person's right by virtue of holding the position and that others will obey because of values they deem to be important; and (5) *referent power*, which is the possession of personal attraction or charisma that inspires others to do something in order to please or gain favor with the charismatic person.

In organizations using adaptive management strategy, leaders draw on a different source of authority than those using mechanistic management. In mechanistic strategies managers see authority primarily as the property or attribute of their position. They perceive authority to be formal, rationalistic, impersonal, and emanating from the legitimacy of control at the top. They exercise leadership through their formal authority. They depend on formal rules and regulations. They make decisions and pass orders down through the hierarchy. They expect subordinates to obey (Tannenbaum and Schmidt, 1958). In organizations using adaptive management strategies, managers see authority as a collegial relationship, based on interaction, discussion, and acceptance by the organization's members. They believe that authority is subjective rather than rationalistic (Peabody, 1964). This type of authority and leadership is "subordinate-

centered" rather than "boss-centered." It leaves a great deal of freedom to members of the organization to participate in decision-making or gives them discretion to make decisions within broad limits set by higher levels of authority.

The most critical functions of leadership and authority in innovative, people-centered development projects are to facilitate continuous adjustment to changing conditions, resolve institutional conflicts, and maintain commitments to participating groups and organizations. This requires managers who exercise leadership and authority through reward, expert, or referent power, rather than depending merely on coercion or legitimacy (Ickis, 1981). Leaders must be able to learn and take action at the same time. Leaders must help their staff to learn from experience so that, together, they can revise strategic and operational plans throughout the life of the project and adjust effectively to changing conditions and needs.

Brinkerhoff and Klauss (1985) summarize concisely the characteristics needed by leaders of innovative development projects. Managers of innovative, people-centered projects must be able to use an experimental, process-oriented approach to management, elicit beneficiary participation, accept trial-and-error methods of learning, test alternatives, and seek opportunities for making innovative improvements. They must be able to encourage open communication and lateral flows of information in order to adjust to and modify the environment in which the project is carried out. They must have, or be able to develop, the capacity to seek and use information constantly in order to learn and adjust their actions. These leaders must be able to use management processes as flexible instruments for attaining goals rather than as ends in themselves (see table 6.2).

Finally, an important element of leadership is the ability to gain and maintain access to higher levels of authority and to obtain political commitment and support. Middleton and his associates (1986) found that in World Bank-funded education projects access seems to be strengthened by arrangements that provide project managers with direct contact at high levels to several key agencies, allow the project manager to be promoted to a high civil service position (thereby increasing access through personal advancement), or provide the project manager with direct access to either the minister of education or the permanent secretary. Establishing and maintaining effective relationships with the staff of international funding institutions throughout the life of a project is also an important leadership function.

Communication

The primary purpose of communication is to create effective relationships among various levels within an organization and with other organi-

Table 6.2 Leadership and authority contingencies

	Management strategy			
	Type I Mechanistic	Type II Open-mechanistic	Type III Professional-adaptive	Type IV Adaptive
Authority	–Highly centralized	–Centralized	–Deconcentrated	–Decentralized
Basis of authority	–Position –Legitimacy –Coercion	–Position –Information	–Status –Technical knowledge	–Expertise –Performance
Use of formal rules	–Very high	–High	–Moderate	–Low
Leadership style	–Command	–Command and consultation	–Collegial	–Participatory

zations. Such relationships usually focus on exchanges of resources and information.

In organizations using mechanistic management strategies, the communication process—consistent with mechanistic planning, decision-making and leadership—emphasizes the top-down flow of information. The stability of the organization and of the environment allow formal communication through directions and regulations aimed at controlling the actions of staff. The organization, needing little from the external environment, is relatively "closed" to outside information.

As organizations move toward adaptive management, the characteristics of communication change, as noted in table 6.3. The structure of the organization usually becomes more complex in order to handle a wider variety of tasks, greater uncertainty, and higher levels of innovation. The communications process becomes learning-oriented and more open to the environment. In short, communication becomes a high priority and consumes considerable amounts of managers' time and resources.

Typically, communication in the education sector takes place vertically among three levels. First, the teachers, who are the frontline implementors, need to be trained to use new teaching methods, curricula, and techniques and then to apply what they have learned in the classroom. They report to the next organizational level (often their trainers or supervisors) on how an innovation is faring in the classroom, how pupils react,

and the problems they encounter, and they adapt and adjust the innovation to local conditions. The second level of organization usually consists of district inspectors, supervisors, and pedagogical counselors, who support and train the teachers and report to the central ministry of education on progress in implementing an innovation at the local level. Inspectors and counselors should be able to resolve many of the problems that teachers encounter with the application of new methods and to monitor activities so that adaptations do not unduly weaken or undermine the innovations. Finally, central-level staff play a similar role in providing

Table 6.3 Communications Contingencies

	Management strategy			
	Type I Mechanistic	Type II Open-mechanistic	Type III Professional-adaptive	Type IV Adaptive
Flow of communications	–Top down	–Top down with some external input	–Top down and interactive, with moderate external input	–Interactive and large external input
Managerial priority	–Very low	–Low	–Moderately low	–High
Content	–Directives	–Directives and inquiries	–Professional guidance –Inquiries –Evaluation	–Professional guidance –Inquiries –Feedback –Evaluation
Purpose	–Control	–Control and adjustment	–Assessment –Adjustment	–Assessment –Learning –Adjustment –Redirection
Style	–Formal	–Formal and consultative	–Formal and interactive	–Informal and informal interactive
Orientation toward environment	–Closed	–Partially open	–Partially open, client-oriented	–Open, client-oriented

policy guidance for the entire system, as well as training, support, and supervision for district-level staff.

Factors that seem to promote the successful implementation of education reform projects are: open communications that allow project staff to learn from experience, to adapt innovations to local conditions, and to expand their capacity for helping teachers to use the innovations effectively. Inappropriate or weak communications systems can undermine the ability of teachers and supervisors to adopt educational changes. An education project carried out in Mali during the late 1970s, for example, foundered on inadequate communication processes (Verspoor, 1988). The technical package to reform the lower secondary education system and to introduce practical science and technology teaching was designed almost entirely by expatriate experts working in the Project Implementation Unit (PIU). The foreign experts had little interaction with their counterparts in the National Pedagogical Institute (NPI) or with local teachers and administrators. The PIU staff made little attempt to communicate the objectives of the project to teachers or to solicit their reactions. Nor were principals from feeder schools involved in the design of the project. The science and technology center directors in the schools were never really "sold" on it. The result of this lack of communication was that the plan to use an integrated approach to science teaching, which was the basis of the PIU's work, was never accepted by the Malians at the NPI. Moreover, the PIU failed to learn about problems with classroom-level use of the plan and about practical administrative problems such as coordination and scheduling. As a result, although six science and technology centers were opened, only two were operating at the completion of the project and none were being used at full capacity.

Planners must create and maintain horizontal channels of communication with other institutions in the project implementing unit's organizational environment: higher-level authorities, beneficiaries, bureaucratic allies, and functional and allocational rivals. Managers must be able to choose methods of coordination and interaction that are most likely to elicit cooperation and participation. In innovative projects participation by interested groups is essential for successful implementation. Internationally funded reforms of the education system in Haiti were successful in large part because of open and effective communications (Verspoor, 1988). Those implementing the project often found it difficult to communicate with the large number of agencies involved in the reform. Sometimes the process was simply chaotic, leading to occasional duplication and ineffectiveness. But the strengths of the system were vertical communication that effectively incorporated feedback from teachers in the design of the program, widespread discussion of the reform objectives among all interested groups, and responsive political leaders who were

willing to move slowly in order to build consensus. Teachers were allowed to test the new curricula and materials in the classroom. The results were communicated back to project managers before the innovations were disseminated more widely.

One of the most important managerial tasks in education projects is to mobilize demand and support for innovations through communication and interaction. As we pointed out in chapter 2, evaluations of internationally funded education projects uncover many that ran into difficulties because of insufficient demand (Middleton, 1986). For economic, cultural, or religious reasons parents in poor countries are often reluctant to send their children to school. Nonformal education projects are usually unfamiliar to the intended audience, and the benefits are not obvious. In many developing countries employers are skeptical about the ability of formal technical education or vocational institutions to deliver practical, high-quality training. Secondary school students often balk at entering programs offering them practical skills in agricultural or industrial arts.

Experience with the World Bank's first education project in Bangladesh showed that when communication, interaction, and participation by relevant interest groups do not occur, projects fail or run into serious operational problems (Middleton, 1986). As a result, in a second project the government of Bangladesh and the World Bank collaborated more closely to design a program for strengthening primary education and for increasing the enrollment of girls in a way that assured a greater participation and interaction among parents, teachers, and educational administrators. Planners considered parents' support for schooling a critical variable in increasing and maintaining enrollment levels. Community School Management Committees were established and supported through a newly developed cadre of supervisors operating at the district level. Management training was provided for district education officers, supervisors, and school headteachers. This training gave greater attention to supporting community participation.

The participatory element together with a new system of supervision strengthened communication within the school system. Creation of an evaluation unit at the national level facilitated the flow of information about the project. The National Academy for Primary Education managed the project and established effective communication and coordination arrangements with other implementing agencies. As a result, enrollment and retention improved significantly and the project began operating effectively.

Communication processes are the primary means by which managers interact with units in their own organization and with other organizations and groups in their environment. Communication, coordination, and interaction are therefore closely related managerial processes. One means

of communicating the objectives of a project and of building political support and commitment—Project Launch Workshops—has been tested in World Bank urban projects and are now being used in education programs (Heaver and Israel, 1986). Project Launch Workshops bring together participants from the agencies and groups that will be involved in implementing a project to give them a clear understanding of its purposes and objectives and to elicit their commitment and support. These workshops not only disseminate information that will be necessary for planning and participation, but serve the more important function of obtaining *public commitment* from each agency to fulfill its responsibilities. Usually, follow-up meetings are held to review progress and to renew commitment throughout the period of implementation.

Arrangements must be made for more adaptive communication processes in situations where there is a high degree of decentralization. The greater the decentralization of authority in the project, the greater the need for effective and efficient vertical communications for supervision and control. An adaptive communications process is also needed in projects requiring effective coordination. The larger the number of units in the organizational setting, the greater the need for horizontal communications between the project implementing unit and other agencies and institutions that can affect the project's outcome. Projects with wide geographical dispersion also require adaptive communications processes. The greater the geographical dispersion of implementors the more difficult communication and coordination become and the greater the need for processes that keep participants in contact with each other.

Coordination

The failure of planners to assess effectively requirements for coordination and the capacity and willingness of organizations involved in implementation to cooperate with each other seriously delays many internationally funded education reform projects.

The first and second World Bank education projects in Colombia, for example, experienced serious problems due to lack of coordination (Verspoor, 1987). The comprehensive school reform proposed by the World Bank required extensive coordination among participating organizations. Planners expected universities to modify entrance examination requirements to facilitate the enrollment of comprehensive school graduates, but the universities resisted making the changes. Local advisory committees were supposed to link the comprehensive schools with local employers, but the committees never functioned. The National Apprenticeship Service, a semiautonomous organization, was to collaborate with the com-

prehensive schools to provide postsecondary vocational education. This relationship never developed. Although many factors contributed to these failures, it is clear in retrospect that the project did not provide sufficient benefits to any of these groups to induce the anticipated coordination and cooperation necessary to implement the project. As a result, the comprehensive schools were isolated from local communities and were never very attractive for either parents or students.

Problems of coordination also seriously affected the implementation of the World Bank's fourth education project in Thailand, a large and complex program with components for diversified secondary education, nonformal education, educational radio, and technical assistance for planning in the Ministry of Education (Verspoor, 1988). The nonformal education component required four levels of administration. National agencies were to plan and coordinate the program; regional units were to provide training and support for provincial centers; the provincial centers were to provide teacher training and materials support; and local units were to deliver services to the clients. The success of the project depended heavily on close cooperation among all four levels. The failure of the project's designers to assess realistically the coordination arrangements within the government, however, resulted in serious implementation problems. As the project was carried out, the roles of organizations at each level became blurred. This led to duplication of effort and on occasion to activities that did not fit well with the facilities that were being constructed. Poor coordination made it difficult to elicit the cooperation of other organizations involved in nonformal education at the provincial and regional levels. As a result, although the project was completed successfully, the nonformal education component had little real impact.

One purpose of communication is to promote coordination and cooperation. In conventional school construction and routine service delivery projects, managers can use a mechanistic management strategy. Scheduling and programming techniques can be used to plan and control the coordination of people and organizations participating in the project. But in innovative projects managers must use more adaptive management strategies that require different forms of coordination. Usually, central coordination and control is less appropriate, especially when many different interest groups are involved in decision-making (Lindblom, 1975; Rondinelli, 1976; Beal and Valbuena, 1985).

Types of Coordination

As table 6.4 indicates, the forms of coordination available to managers range from command to facilitation and mutual adjustment. The characteristics of each form are summarized briefly below.

Table 6.4 Coordination Contingencies

	Type I Mechanistic	Type II Open-mechanistic	Type III Professional-adaptive	Type IV Adaptive
Form of coordination	–Command	–Negotiated authority	–Negotiated authority	–Negotiated authority
		–Plan	–Plan	–Plan
			–Facilitation	–Facilitation
				–Mutual adjustment
Instruments of exchange	–Allocated budget	–Negotiated budget	–Negotiated budget	–Negotiated budget
		–Goal attainment	–Goal attainment	–Goal attainment
		–Information	–Information	–Information
			–Prestige	–Prestige
Need for commitment	–Very low	–Low	–Moderately high	–High
Use of persuasion	–Very low	–Low	–Moderately high	–High
Use of incentives	–Very low	–Low	–Moderately high	–High
Importance of "boundary spanners"	–Very low	–Low	–Moderately high	–High

Command. Command is a form of coordination in which one organization or individual "uses the threat of severe deprivation to induce other people or groups either to carry out actions that they desire not to perform or, in the normal course of events would not perform" (Kelman and Warwick, 1980: 36). Managers issuing commands usually provide rewards or threaten punishment to induce changes in behavior. Some managers attempt to control the behavior of others by preempting decisions and, in extreme cases, by using force to obtain compliance.

Command rests heavily on the ability of leaders to reward and punish subordinates. Rewards and punishments are most effective when the

leader controls something needed by subordinates, such as wages, information, or status. The leader must have the power to give or withhold the things that subordinates need. Command works best when the leader is not concerned about long-term relationships with subordinates and can evaluate performance or behavior and reward or punish shortly after actions are taken by subordinates (Lippett, Langseth, and Massop, 1985). Rewards and punishments—and thus command—are much less effective, and may be counterproductive, in situations in which subordinates do not consider them legitimate instruments of control. Coordination by command is also ineffective when leaders cannot enforce punishments or deliver rewards expeditiously, when standards of performance cannot be easily and quickly assessed, or when subordinates have a strong need for independence. Command is a weak form of coordination if subordinates can reject rewards and escape punishment.

Coordination by command can be effective in organizations using mechanistic management strategies when they are implementing projects under conditions of environmental certainty and with little innovation. It is usually less effective as uncertainty and innovation increase and as more adaptive strategies of management are needed. It became clear in the early years of educational reform in Haiti, for example, that implementation by administrative fiat and command simply would not work (Middleton, 1986). Successful implementation of reforms depended on the gradual acceptance of change by all "stakeholders"—parents, teachers, administrators, education officials, and social and political elites. Progress at each stage of implementation had to be negotiated carefully, and at times the project had to be slowed down in order to build support among various interest groups.

Negotiated Authority. Negotiated authority is a form of coordination where a number of organizations surrender a limited amount of authority to a coordinating organization in return for specified benefits. This authority enables the coordinating body to request other organizations to perform specific tasks. A common pattern is for several organizations to agree to carry out specified tasks or functions within a broad program, under the authority of the coordinating unit, in return for funding or other resources, such as staff training. A legal agreement makes the arrangement more permanent and more difficult for the parties to withdraw. Tasks and responsibilities are divided among the organizations by geographic areas, such as when a coordinating body implements a nonformal education program through private voluntary organizations in different regions of a country. Or tasks can be divided by specialized function—such as when curriculum development, teacher training, and program evaluation are done by different institutions with expertise in those functions.

Establishing coordination of this type generally requires one of the participating organizations to have considerable authority. Few organizations willingly surrender authority, and this type of coordination tends to take place in centralized organizations that use mechanistic management strategies. However, encouraging formal cooperation tends to open up an organization using a mechanistic strategy, increasing the flow of information and improving the ability of the entire organization to deal better with environmental uncertainty.

Coordination by Plan. Coordination by plan is a less permanent form of negotiated authority. Organizations agree to perform specific functions according to a mutually developed plan in return for resources. The "instruments of exchange" in such a relationship can include funding, a greater opportunity for a participating organization to achieve its own goals, better information, and the prestige of participating. This form of coordination requires less central authority and depends more on the strength of incentives and the commitment of organizations. Managers must act as boundary spanners—that is, serve both formally and informally as coordinators between or among organizations. Tasks can be divided by geographic area or by function. Organizations can withdraw from the arrangement with no penalty other than loss of resources. A consortium of agencies implementing different components of a project is a common example of this form of coordination, as is an interagency task force. Contract relationships also fall into this category, although with the potential, at least, for greater penalties for withdrawal.

Coordination by plan opens organizations to greater flows of information. It is often a desirable model when organizations with different objectives and styles—such as a line ministry and a university research center—agree to cooperate.

Facilitation. Facilitation is a strategy of coordination designed to "make it easier for individuals to implement their own choices or satisfy their own desires. An underlying assumption is that people have some sense of what they want to do and lack only the means to do it" (Kelman and Warwick, 1980: 63). Facilitation may be direct or indirect. Through direct facilitation an organization intervenes to assist other organizations and groups to achieve their objectives by providing resources, technical assistance, or advice. An organization engages in indirect facilitation by adapting its decisions to those of other organizations in order to obtain mutually beneficial goals or by avoiding adverse effects for other organizations in seeking its own objectives.

Facilitation provides the opportunity for cooperation without necessarily making explicit agreements to do so. The decision to change be-

havior within each organization may be based on exchange of information, but each is free to make its own adjustments. Thus facilitation is usually not a strong instrument of control, but it can create relationships that later lead to formal coordinating arrangements (Beal and Valbuena, 1985). Common models include advisory committees and interagency councils.

This form of coordination depends heavily on the participating organizations perceiving mutual advantages. People who can act as "boundary spanners" are very important, and, indeed, such coordination is often most successful when it is based on strong personal relationships between the leaders of the organizations involved. When these prerequisites are in place, facilitation can provide a very flexible and responsive means of coordination and can therefore be used in adaptive management strategies.

Mutual Adjustment. Mutual adjustment is a form of coordination in which one organization or individual seeks to enlist a desired response from another organization or individual through interactions that move both parties toward reconciliation or agreement on decisions, if not on values (Lindblom, 1975). These methods often involve some form of exchange such as negotiation and bargaining, provision of rewards or incentives, coalition building, reciprocity, compensation, or subsidization.

Informal communication and personal relationships are important in this form of coordination (Beal and Valbuena, 1975). Persuasion plays a key role. Mutual adjustment is at once the weakest and most adaptable form of coordination. It generally does not work well in more mechanistic management strategies but can serve important purposes when highly innovative projects must be implemented in uncertain environments.

Control

Organizations using mechanistic management processes attempt to control staff performance by rigid regulations (see table 6.5). Rules and regulations assure top management or external authorities that activities are being carried out according to plan and that tasks are being accomplished according to a preconceived design. All organizations must have some controls to assure minimum levels of performance, protect the organization's assets, standardize the quality of its goods and services, limit authority, and measure employee performance. But in organizations using mechanistic management strategies, leaders exercise control primarily by assuring that subordinates adhere to rules and regulations and by preventing discrepancies from arising between planned and actual activities. In stable environments and for routine tasks controlling ac-

tivities by preconceived plans is possible and often appropriate. Most bureaucracies use ex-ante controls—that is, rules and regulations that attempt to prevent or minimize deviations from prescribed courses of action. The use of these rigid controls in less developed countries is often justified as the only way of avoiding corruption and inefficient use of resources and reflects the hierarchical nature of authority. Ex-ante controls are used most often for budgeting and expenditure functions. They are concerned primarily with assuring that staff adhere to regulations,

Table 6.5 Monitoring, Control, and Evaluation Contingencies

	Type I Mechanistic	Type II Open-mechanistic	Type III Professional-adaptive	Type IV Adaptive
Purpose of monitoring	–Control	–Conformance to plan	–Improve performance	–Improve performance –Adjust plan
Control	–Ex-ante	–Ex-ante	–Mixed ex-ante and ex-post	–Ex-post
Focus	–Work	–Outputs	–Targets	–Performance
Use of top down orders	–Very high	–High	–Moderate	–Low
Use of job descriptions	–Very detailed, emphasize activities	–Detailed	–Moderately detailed	–General, emphasize activities and objectives
Use of professional self-control	–Very low	–Low	–Moderately high	–High
Use of persuasion and advice	–Very low	–Low	–Moderately high	–High
Use of performance appraisals	–Top down, non-participatory	–Top down, non-participatory	–Selective participation –Peer review	–Interactive

and they give relatively little attention to other aspects of performance. As a result, when ex-ante controls are the primary means of monitoring and evaluating activities, staff often give highest priority to following rules rather than to performing their substantive tasks in the most effective way.

Moreover, in many developing countries, ex-ante expenditure controls, combined with lengthy processes for approving expenditures, make it difficult for ministries of education to respond rapidly to changing circumstances. This hampers the implementation of education reform projects, especially those that require substantial amounts of contingency funds to be deployed on short notice as the project progresses. Perhaps even more constraining than these financial rigidities are the organizational limitations that such controls create, especially for personnel recruitment. They make hiring new staff or redeploying personnel geographically an arduous process. They inhibit delegating authority and transferring budgetary resources to district-level staff. Thus, in innovative projects—in which ideal or desired results cannot always be specified in advance—ex-ante controls will impose stifling constraints on staff behavior, reducing their motivation and capacity to respond to changing conditions.

In projects requiring adaptive management the concept of control must be perceived differently. David Korten (1984: 344) notes that organizations implementing innovative social projects must create and maintain good management information and control processes, but that in innovative projects "these processes are used as tools to guide action, not as weapons to force compliance." In projects aimed at promoting social change, control processes would "provide rich and rapid performance feedback to all organizational levels in support of self-corrective action, while the institutional culture nurtures individual initiative in the pursuit of ideas and responses appropriate to new circumstances." Korten concludes that "involved people, not rigid controls, are viewed as the key to both productivity and to strategic response."

In organizations using an adaptive management strategy, managers cannot use orders, rules, and regulations as instruments of control frequently. They keep job descriptions general and emphasize objectives rather than activities. Managers depend on staff professionalism and self-control, use suggestions, persuasion, advice or information-sharing to guide behavior, and encourage participation in decision-making. They employ collaborative performance appraisals to assess staff effectiveness. They use training extensively to socialize staff and a combination of monetary and nonmonetary rewards to reinforce effective performance (Hellriegel and Slocum, 1982).

The effective implementation of innovative education projects requires a shift from ex-ante to ex-post controls. This represents a substantial

change from the usual bureaucratic procedures found in education systems in many developing countries and can only be expected to take place gradually. It requires top-level managers to trust local implementors and to establish with them clearly defined performance goals that are periodically reviewed and adjusted. While fears of abuse are real, there is no alternative to decentralizing resource allocation authority once the decision has been made to place more responsibility for implementation with local implementors. Ex-post expenditure controls should be thorough and the penalties for abuse severe. Local implementors will also have to learn to take the initiative and act creatively. The function of central-level staff then moves away from regulating and controlling to providing support (Elmore and McLaughlin, 1982).

Monitoring and Evaluation

Monitoring and evaluation are essential components of all management strategies. Their purpose and content differ significantly, however, in mechanistic and adaptive management strategies.

In mechanistic strategies stability and low levels of innovation reduce the need for information, a condition reinforced by the use of strong ex-ante controls. Since things are likely to go as planned, assessments can be made relatively infrequently, on a rather routine basis. Managers give a great deal of emphasis to statistical indicators that capture the broad, slow swings of administration. They focus on the internal operations of the organization—on controlling performance to conform with plans. Collection of enrollment statistics is an example of mechanistic monitoring. The key issue in monitoring and control in mechanistic management strategies is to determine whether or not implementation is proceeding according to plan and, if not, to take corrective action to make sure that it does.

Adaptive management strategies, on the other hand, require managers not only to monitor progress on project tasks, but also to monitor the environment in which the project is being carried out. Monitoring is especially important in innovative projects that attempt to influence or bring about changes in public policy, for this form of environmental manipulation requires careful timing. Often project implementation units are capable of dealing seriously with problems and introducing significant changes only sporadically and for short periods of time when the environment is conducive for doing so, that is, when problems are widely recognized, political conditions are favorable, and acceptable policy proposals can be formulated. When all three conditions prevail, opportunities appear for significant change (Kingdon, 1984).

Careful monitoring allows a project manager to seize such opportu-

nities for introducing innovations or proposing strategic changes. The key issue in monitoring and control for managers using adaptive strategies is to determine whether or not changes in the environment, in the needs of clients and beneficiaries, and in the behavior of participants are affecting the ability of the project to achieve its objectives. If so, they must find ways of improving the plan and the organization's courses of action to achieve beneficial results.

Internal monitoring is also essential in both adaptive and mechanistic management strategies because the opportunities for change within organizations come about most frequently through the recognition of performance gaps, that is, by identifying significant discrepancies between what an organization is actually doing and what it should be doing. Monitoring can help project managers to recognize performance gaps and opportunities for closing or reducing them through innovation (Downs, 1967).

Monitoring, solicitation of feedback, and modification of the project based on what was learned were key factors in the success of World Bank-assisted education reform projects in Ethiopia (Middleton, 1986). The central government agency in charge of the reform program developed procedures for obtaining technical assessments from administrators and teachers. New curricula and revised textbooks were tested in seventy experimental schools prior to introducing them throughout the country. Teachers and administrators provided their assessments to the National Curriculum Development Center staff, who then compiled summary evaluations and made changes in the materials. The feedback and adaptation process continued during teacher training in the district pedagogical centers, and teachers were urged to be innovative in the classroom.

Innovative projects require information systems that provide rapid feedback on key program elements. Time is of the essence for project managers, and receiving information rapidly is often more important than having comprehensive and scientifically rigorous assessments. To gain a good understanding of causal relationships in the application of innovations, for example, administrators need classroom observations and qualitative data to supplement quantitative studies. Experience suggests that qualitative data should be collected selectively during the entire project (Verspoor, 1988).

Havelock and Huberman (1977) found in their review of education reform projects funded by United Nations agencies that the most frequently used evaluation techniques were written descriptive reports. A little more than half of the technical advisers and national directors surveyed mentioned using written quantitative reports, open discussion, and oral reports. About 47 percent used questionnaires, direct observation of classroom behavior, and direct observation of behavior in the field. Less

than one-third of the evaluations involved systematic data collection or structured interviews. In most cases the evaluations were informal, post hoc, and based on limited information.

Many of the technical advisers and national directors explained that more extensive and "scientific" evaluations were not done because of their high cost, the lack of trained personnel, insufficient data bases, and the large scale and diversity of the "target population." Many of the projects had unclear objectives and could not be evaluated effectively. Moreover, because the objectives, scope, and scale of most projects changed during implementation, and sufficient baseline data had not been collected at the time the changes were made, it was difficult to evaluate their technical results. Respondents noted that it was difficult to quantify the most important objectives and that few administrators know about appropriate evaluation instruments.

Havelock and Huberman (1977: 275) also found that even when "scientific" or systematic evaluations had been done, they were rarely used in decision-making. "To some extent, the fact that evaluation data are little used as a basis for decision making is attributable to the delays in providing these data and the often unreadable form in which they may come." They discovered that evaluators were quite careful to qualify their conclusions, "often doing so in what is perceived as hermetic language," while administrators wanted clear, unambiguous conclusions and unequivocal results on which they could take firm action. When they fail to receive such evaluations, administrators and political leaders will often ignore the reports and revert to making decisions on the basis of previous convictions.

Keeping monitoring and evaluation processes simple and focused on only a few key program variables, which are selected carefully by project planners and managers in consultation with local implementors, allows them to provide rapid feedback.

Staffing

Personnel management tends to be one of the most difficult processes facing education administrators in developing countries. Personnel practices are particularly important, however, in managing education reform projects. Often those holding administrative or leadership positions in education institutions have little or no training in management. They are teachers, education professionals, or university professors who may be quite competent in their substantive fields, but who may have little or no experience or training in managing complex projects.

The rigid, highly centralized political process of personnel management often found in ministries of education causes serious operational

and morale problems. Rojas (1984: 319) describes a situation in the Ministry of Public Education in Costa Rica that differs little from that found in many other developing countries:

> The quantity and variety of issues it has to deal with in the classification of personnel, in the types of appointments and other personnel movements, in the time spans of the appointments, in the parts of the country where people are working or moving to, and in the systems for calculating their salary, is beyond imagination. To this can be added for each case a procedure consisting of myriad steps to be followed even before an appointment can go through. All of the steps are done manually for 30,000 workers of which around 20 percent each month demand some kind of personnel movement or action [leaves for different reasons, substitutions, temporary and permanent movements, reclassifications].
>
> The problems derived from mistakes in this process, from outside political intervention, from the slow processing of documents are the "daily bread" of Ministry of Education administrators, the object of denunciation and conflict for the teachers' unions, the concern of politicians, a nightmare for workers in education and the cause of a variety of negative consequences for the students.

Hanson (1986) found in both Colombia and Venezuela that education reforms were seriously delayed or undermined by the lack of management experience of many officials in the ministries of education and by the practice of appointing officials—and sometimes teachers and school directors—on the basis of political affiliation. Reviewing the Venezuelan reforms, Hanson (1986: 203) found that "politics was, in large measure, responsible for the staffing of positions with inexperienced personnel. When a different political party gained control of the Ministry of Education, key officials throughout the hierarchy were usually replaced." The political appointment of education administrators creates serious instability in education ministries and weakens their capacity to carry out innovations. Hanson (1986: 197) quotes a Venezuelan education official who noted that every time there was a change in the political party in power and a new education minister was appointed "they changed the programs, changed the furniture, changed the curtains, changed the people—they changed everything." Previous programs were abandoned, regardless of their efficacy. New policies were instituted as a way of regaining control over the education system. Previous reforms were discontinued, and new reforms were, in turn, abandoned if the opposition party gained power in the next election.

Acquiring, managing, and developing a competent staff is a crucial

function in all organizations and an important aspect of education reform. Well-developed personnel processes usually have the following elements:

1. Position design and classification—the arrangement of integrated sets of tasks or objectives into positions based on division of labor, authority and responsibility, the structure of the organization, skill requirements, and ranking based on appropriate compensation criteria;
2. Manpower planning—projections of staffing needs by position, category, or skill requirements;
3. Recruitment and placement processes—for attracting qualified staff to appropriate positions, including a procedure for delegating hiring decisions to immediate supervisors with appropriate review by top management;
4. Motivation processes—incentive programs that include an appropriate mix of monetary and nonmonetary incentives;
5. Performance appraisal processes—standards and processes for assessing employee performance that are, ideally, linked to levels of compensation;
6. Staff development programs—a combination of career paths and training and development opportunities that support employee retention and growth; and
7. Personnel information processes—processes that provide access to the data necessary to and generated by elements of the personnel management procedure as a whole.

Both mechanistic and adaptive management strategies require personnel processes that perform these functions effectively. However, the way in which these functions are performed in each management strategy differs significantly (see table 6.6).

In organizations using mechanistic management strategies, managers try to control employee performance through detailed functional job descriptions. They rarely use job enrichment as a reward. Rewards are primarily financial. They make promotions slowly and on the basis of seniority. In short, employees are given a job to do and are expected to do it in return for a salary. If well done, this type of personnel practice can be effective where tasks are routine, requiring little employee initiative, and the environment is stable, requiring little adjustment to changing circumstances. If poorly done, it can degenerate into rigid civil service systems in which performance has little to do with advancement and in which personal and political ties influence personnel decisions.

Incentives

Environmental uncertainty and a greater need for information push decision-making and initiative to lower levels in most organizations. Employees are expected to take initiative, solve problems, find appropriate ways to meet objectives, and provide critical feedback on project effectiveness. This kind of job behavior is much more likely to occur with adaptive personnel processes. As table 6.6 shows, managers using adaptive management strategies design job descriptions to emphasize objectives and performance criteria rather than function. They make use of both monetary and nonmonetary compensation and use job enhancement as a reward for good performance. They allow a much higher degree of employee

Table 6.6 Staffing Contingencies

	Management strategies			
	Type I Mechanistic	Type II Open-mechanistic	Type III Professional-adaptive	Type IV Adaptive
Basis of jobs	–Functional specialization	–Functional specialization	–Functional specialization –Objectives	–Objectives
Use of job enrichment	–Very low	–Low	–Moderately high	–High
Incentives	–Limited, monetary	–Mostly monetary	–Monetary and professional	–Professional –Service –Monetary
Employee motivation	–Job security	–Job security –Loyalty to organization	–Loyalty to organization –Professional status	–Service to beneficiaries –Professional status
Use of employee self-control	–Very low	–Low	–Moderate	–High
Performance measures	–Conformance to rules	–Conformance to rules	–Rules and performance	–Performance

self-control. Employees participate in performance appraisal and promotion on a known career ladder that is based on achievement.

Creating effective personnel management processes and appropriate incentive systems can make a substantial difference in whether or not a project is implemented successfully. The implementation of education reforms in Pakistan, for example, was greatly improved by new staffing and incentive policies (Verspoor, 1988). Staff in newly created posts, such as assistant teachers, learning coordinators, and supervisors were given secure salaries and the opportunity for permanent positions after the project was completed. Other incentives included provision of transportation costs and per diem expenses during periods of training and housing for women teachers, although it turned out that most who applied for the jobs were married and did not need housing facilities.

The importance of achieving congruence between management strategies and management processes is nowhere more important than in personnel practice. Mechanistic personnel practices fail to reward employees for the very behaviors adaptive management requires. Adaptive personnel practices in an organization using a mechanistic management strategy may punish employees by encouraging adaptive behavior that is inconsistent with mechanistic leadership, decision-making, controls, and rewards.

A special challenge for managers using adaptive management strategies is to recruit or develop staff who are comfortable with adaptive management processes and who are willing to learn and act at the same time. They must be professionals who are able to operate flexibly without strong central controls. They must be able to assume responsibility for achieving results, engage in trial and error in order to solve problems, and respond effectively to the needs of beneficiaries. These are characteristics not usually associated with bureaucrats or narrowly specialized technicians. Rather, they are characteristics of people who are entrepreneurial and developmental in their orientation and of people who are strongly committed to achieving social change. Special efforts should be made early in the implementation of highly innovative projects to find managers and staff who can apply adaptive management strategies.

When individuals of this type are hard to find, managers must inculcate, through training and other human resources development programs, the attitudes, values, and skills required by adaptive management strategies. Especially important, as Frances Korten (1981: 185) points out, is recruiting and retaining personnel "who see knowledge as residing in both professionals and beneficiaries with a combination likely to result in more successful programs." Innovative projects require managers who "view beneficiaries as active partners in a joint process of program development and implementation." These professionals must be able to

interact effectively with beneficiaries and communicate with them in nontechnical language.

A serious problem in international development projects is recruiting effective expatriate technical assistance personnel. Planners must devote considerable attention to matching the experience of the expatriate, not only to the technical requirements of the job, but also to the required management strategy. Advisers who are used to applying mechanistic management strategies can hamper projects requiring adaptive management and vice versa. Experience with World Bank-sponsored education projects shows that the use of expatriate experts works well when there is substantial agreement between the bank and the borrowing government on the objectives of the project and on the weakness of indigenous implementation capacity (Middleton, 1986). However, expatriate technical advisers are effective as line managers only to the extent that they can adapt to the borrowing country's culture and administrative environment. In any case planners must make provisions to have expatriate advisers train local counterparts and to shift responsibility to local personnel as a project nears completion.

Creating and using the proper combination of incentives is crucial to the success of education reform projects. Herzberg (1966) found that there are two kinds of incentives that affect the behavior of employees; he calls them "intrinsic motivators" and "dissatisfiers." Dissatisfiers are basic, widely expected incentives—such as adequate salary, possibility for growth, good relations with subordinates, status, good relations with peers, appropriate supervision, and job security—the absence or inadequacy of which causes dissatisfaction among staff. But their presence alone is not sufficient to motivate strong work performance. Positive attitudes toward work and good performance are intrinsically motivated more by achievement, recognition, opportunities for advancement, possibilities for being given greater responsibilities, and the nature of the work itself, in addition to basic incentives.

When incentives are not provided for active participation in education reforms, it is difficult to get teachers and local administrators to carry them out or to mobilize local support for them. Education reforms in Venezuela during the 1970s and early 1980s failed because, as Hanson (1986: 205) discovered, "the reform did not delegate decision-making power, [and] opportunities did not exist for people at local levels to influence personnel selection, resource distribution, behavioral norms, or to an extensive degree, curriculum content. Consequently, there was no incentive for local exercise of initiative." Moreover, local communities held the Ministry of Education responsible for the schools, and local groups felt no obligation to improve them or to mobilize resources in support of education reforms.

Problems in implementing internationally funded education reform projects in Indonesia are also attributed to inappropriate and inadequate incentives for staff (Verspoor, 1988). There is no other country in the world to which the World Bank has applied as much effort in the education sector as in Indonesia. By the mid-1980s the bank was funding ten projects with a loan value of $710 million. However, these projects encountered serious delays due to management problems. Funds were not being spent at planned rates, costing the government large amounts of money in extra loan commitment charges. Although a number of complexities in the budgeting system were responsible for the delays in allocating funds to the projects, at the heart of all of the management problems was the nature of incentives for project managers. Indonesian civil servants were inadequately compensated through base salaries, and therefore, most held more than one job. In the Ministry of Education project managers were often university professors or ministry staff receiving honoraria for part-time services. Moreover, the amounts of the honoraria were limited. Thus, the incentive system was ineffective in attracting and motivating strong managers, with serious adverse impacts on the pace of implementation.

The implementation of educational improvement programs in Paraguay also benefited from a system of incentives for teachers to adapt changes and to work in nuclear schools (Verspoor, 1988). Managers made a deliberate effort to improve the working conditions of rural teachers. They established both external and in-service training programs so that teachers could learn about changes in curriculum and teaching methods. They allowed motivated teachers to work two shifts and to receive a double salary instead of taking second jobs not related to education. They provided housing for teachers near all of the project's community centers. They also gave teachers credit that could be used for salary increases for attending upgrading courses and for participating in community development activities and multigrade teaching. Teachers who volunteered to teach in frontier or physically isolated rural areas received extra benefits.

Summary

If education reform projects are to be implemented successfully, the management processes used by the implementing organization must be compatible with the required management strategy.

In organizations that use mechanistic management strategies, managers use comprehensive planning, centralized decision-making, and coordination by command. Leadership style is usually authoritarian. Leaders communicate with employees formally through vertical channels from the top down. They attempt to control behavior through formal rules,

monitor performance to assure that activities are carried out according to plan, and rely heavily on ex-ante controls to minimize deviation from regulations. They evaluate staff by their efficiency in carrying out specified functions.

In organizations that use adaptive management strategies, managers rely on incremental planning, decentralized and participatory processes of decision-making, and collegial forms of leadership and authority. They employ both formal and informal channels of communication and encourage everyone in the organization with responsibility for project tasks to participate in major decisions that affect the organization's effectiveness. They coordinate through facilitation, mutual adjustment, and persuasion. They monitor activities in order to adjust both plans and strategies to changing conditions. Adaptive managers rely mostly on ex-post controls and evaluate the performance of staff by their effectiveness in reaching organizational objectives.

In chapter 7 we discuss the structural alternatives available for implementing education reforms and the ways in which organizational structures influence management strategies and management processes.

CHAPTER SEVEN

Comparing Organizational Structures

ORGANIZATIONAL STRUCTURES establish predictable patterns of relationships among people by dividing work into distinct tasks and by coordinating the activities of their members (Mintzberg, 1979). Organizations exert strong influence on the behavior and attitudes of their members and on the ways in which they perform their work. Thus, the structure of an organization should be designed to allow groups of people to achieve their goals efficiently and effectively and to respond to changes in the environment in which they are working.

Structures are reflected in organization charts that show the formal relationships among units and people, the division of labor into tasks, the distribution of authority, the roles and jobs of individual members, lines of responsibility, and formal patterns of communication (Gibson, 1980). Although an organization chart does not always reflect how informal interaction and communication really take place, it does establish the general perspectives and expectations of managers. It thus serves as an integrative mechanism that relates the organization and its tasks to the environment and guides management processes.

Evaluations of education projects financed by international assistance agencies claim that many implementation problems arise from the fragmented and uncoordinated organizational structures through which they must be managed. In Thailand, for example, various departments of the Ministry of Education operate autonomously in planning and implementing education projects funded by international organizations. Nonformal education programs are formally the responsibility of the Nonformal Education Department of the Ministry of Education. But the department shares responsibility with Regional Nonformal Education Committees, Regional Nonformal Education Centres, Provincial Nonformal Education Committees, Provincial Nonformal Education Centres, and district, subdistrict and village organizations. In addition, nonformal education projects are also carried out by the Community Development Department, Vocational Education Department, Public Health Office, Agricultural Extension Department, and others. With such a fragmented organizational

structure severe problems arise in implementing nonformal education projects. They include the lack of staff to coordinate activities, lack of cooperation among organizations in delivering services, conflicts in the management processes of each organization, and conflicts among staff of organizations that are at least partially in competition with each other for personnel, financial resources, and equipment (Hugkuntod and Tips, 1987).

In much of Africa responsibility for education is divided among ministries. For example, in Zambia education functions are carried out by both the Ministry of General Education and Culture and the Ministry of Higher Education. In Madagascar the Ministry of Secondary and Basic Education is responsible for some functions, while others are performed by the Ministry of Higher Education. Auerhan and his associates (1985: 21) discovered that in both countries this led to "a considerable diffusion of the national planning effort in the sector among various ministries and institutions and the consequent weaknesses of individual planning units, none of which approaches a level which could be called adequately staffed."

In this chapter we review the organizational implications for education reform. We examine the strengths and weaknesses of centralization and decentralization in education systems and alternative structures for implementing education reform programs.

Centralization and Decentralization in Education Systems

An important organizational issue for those planning education reform programs is the appropriate degree of administrative centralization or decentralization needed to carry out innovative tasks. This issue can seriously affect the success of education reforms because the structure of the education system establishes constraints on the types of organizational arrangements that can be used to implement education projects. Project planners and managers must carefully analyze how the structure of an education system affects service delivery and quality and how it influences the ability of education institutions to adopt changes.

Centralized Education System

The geographical dispersion of schools and the organizational tradition of teacher independence in the classroom give education all of the characteristics of a decentralized enterprise. Yet, in most developing countries the education system is hierarchically structured, with most of the important decisions made by central government ministries. This image of centralized administration is reinforced by organization charts and codified procedures issued by most ministries of education. Coombs (1974:

213) found a widespread tendency in developing countries even for nonformal education programs to be carried out by large, centralized national bureaucracies and for the programs to become "homogenized, rigidified and standardized for areas and clienteles that require differentiated treatment."

Formal education in most developing countries is controlled by a central ministry of public education. Costa Rica's hierarchical and centralized structure of public education is typical of systems found in many other Latin American countries. Control over public schools and supervision of private and "semiofficial" schools in Costa Rica are the responsibility of the Superior Council of Education. It implements policy through its executing agency, the Ministry of Public Education (MEP). Under Article 81 of the constitution all policies for public education in Costa Rica must be established by the Superior Council of Education. The Ministry of Public Education plans for building construction, establishes the administrative requirements for schools, supervises the integration of the public system, approves plans and programs for the schools, designates the types of schools that can provide public education, approves and provides texts, furniture, and publications, establishes norms of inspection, formulates plans for teacher qualification and improvement, and establishes the education budget (Rondinelli and Zurcher, 1987).

As the education system in Costa Rica grew larger, the decline in the quality of education was attributed by school administrators and teachers to its highly centralized structure. A report of thirty-two technical and consultative commissions on education concisely summarized the major problems plaguing public education in Costa Rica (Government of Costa Rica, 1979). The committees argued that the standardized basic curriculum for all schools is not attuned to the real needs of the students, does not produce a creative spirit of development and build critical intellectual capacity, and does not meet the needs of different regions of the country. Inadequate and ineffective methods of evaluation create insecurity among teachers, students, and parents about the quality of education and the standards of student promotion. Inspections by regional supervisors are ineffective in that these focus only on assuring that schools meet minimum standard requirements and comply with central rules and regulations rather than on the quality of teaching and potential improvements in teaching methods and learning processes. The centrally determined salary levels for each teaching position are too low to recruit and retain the highest quality teachers, and promotion standards are based on seniority or time in position rather than on merit.

Similar criticisms are made of the centralized education systems in other developing countries. Often, however, governments in developing countries have had to centralize control over the education system in

order to establish minimum standards, to create a coherent program of education, and to ensure access to education for households at all income levels. For example, in the late 1960s and early 1970s the state-level education systems in Colombia were disorganized, highly variable in quality, and chaotic in administration. More than half of the teachers appointed by state governors—largely on the basis of political party affiliation—did not meet minimum teacher qualifications. The state divisions of education largely ignored the educational requirements of the central Ministry of Education. Resources for education were inequitably distributed among states and within them. Teachers were often appointed by governors even though the states lacked sufficient funds to pay them. Salaries were not paid because the states diverted education funds for other uses. School construction was not coordinated, and local pressure groups in urban areas could influence the state government to build more schools in cities, leaving many rural areas completely unserved.

It was not until widespread mismanagement left state education systems in financial crisis during the late 1960s that the central government was able to gain some control. It did so by establishing a Regional Education Fund (FER) that allowed states to obtain financial assistance only if they agreed to set contractual requirements. States were free to reject the contracts but would not receive any central funds for education if they did so. The contracts required the states to increase appropriations for education at the same rate they increased total state expenditures, to hire only those teachers who passed qualifying examinations written by the Ministry of Education, to replace all nonqualified teachers over a period of two years, to create adequate numbers of supervisory positions, and to permit the Ministry of Education to supervise state budgetary expenditures for education. Hanson (1986: 90) points out that as a result of the FER reforms, "the ministry has been able to reduce significantly the administrative semianarchy that had prevailed within the state educational systems. No longer do the states try to establish de facto educational policy because they feel they can safely ignore the ministry's academic and administrative policies and rules." Only after control over the education system was centralized and consolidated was it possible to undertake other education reforms. During the 1970s the Colombian government enacted an important educational tax allowance program, nationalized secondary education, reorganized the Ministry of Education to deconcentrate administration and supervision, undertook a comprehensive school mapping and nuclearization program, diversified the program of education and revised the seventy-year-old legislation on the teaching profession. None of the reforms could have been initiated without first consolidating and centralizing control over the education system.

Planners of education reform programs must be careful, however, to

distinguish between formal structure and the way the system actually operates. Although control over education in many developing countries is formally centralized in the national ministry of education, organization charts can be misleading. In reality, the links between the ministry of education and the schools in many countries are weak. Interaction between central officials and local schools frequently takes place only through sporadic visits by inspectors and the delivery of teachers' paychecks.

Even when central ministries of education legally have strong control over education administration, tensions often arise between central ministries and local districts and public interest groups. Samoff's studies of Tanzania (1987: 353), for example, found significant conflicts between central planning and local autonomy on the issue of school expansion. Local communities or church groups often open their own private primary and secondary schools when they perceive that the central government is not responding quickly enough to local demands. "Although there are clearly stated policies and rules that set the conditions for educational expansion, officials find themselves impotent, unable to close unregistered or otherwise illegal schools." Although local groups often ignore or undermine the Ministry of Education by opening new schools on their own, the central government lacks the resources to operate existing schools let alone meet the demands for additional ones.

In countries like Tanzania, where national ideology promotes self-reliance, local initiative, and self-help, central officials find it politically difficult to quash local efforts to open new schools, even if the unplanned expansions are substandard or illegal. In conflicts between central ministry plans and local initiative, the central ministry often loses. Samoff (1987: 353) points out that in Tanzania the central education ministry is powerless to control the expansion of private secondary schools outside of the capital city when local groups are well organized and assert themselves.

> National officials set the formal rules, but locally based coalitions open schools. National policy for educational expansion is organized around a plan for developing particular skills. Actual practice is much more chaotic. In many existing secondary schools the vocational curriculum has a formal existence but little practical content. In most of the new schools the skills orientation is even less visible. . . . Asserting the national ideology of self-reliance, local coalitions will seek to create a more secure political base by gaining control over the new institutions. Indeed, to some extent that has already occurred: the school-organizing committees are in practice protolocal government councils. As such, they probably link village,

> ward, and district levels much more effectively than did previous district councils.

Moreover, in most developing countries central ministries of education are themselves subject to strong external controls, which limit their ability to make changes or initiate reforms. The strongest external controls are usually budgetary. Ministries of education, like most other government agencies, must obtain approval for their budgets from many bureaucratic and political levels within the central government and are subject to the constraints imposed by the Ministry of Finance. These external constraints on the formulation, execution, and control of the education budget are described concisely by Rojas (1984: 164–165) in her study of education reform in Costa Rica:

> This process is centralized in its formulation: the proposals of the different institutions have to go through OFIPLAN, the National Planning Office, and the Ministry of Finance for approval before being sent by the Executive to the Legislature for approval. Changes can occur at these levels with respect to what the Ministry presents. The Ministry, here, has to negotiate its priorities since changes introduced at this level do not always take into consideration the institutional priorities. The execution of the budget is also centralized for the whole of the state system of institutions and is carried out by the Ministry of Finance and its administrative units like the Budget and Payroll Offices.

The highly centralized system of budget control and the power of the Ministry of Finance in Costa Rica seriously affect the ability of the Ministry of Education to operate efficiently. They leave the ministry with little flexibility to make changes after the budget is approved. After the budget is approved each item of expenditure must go through a "very complicated and bureaucratized process which is slow and inefficient," Rojas (1984: 166) observes. Because of these controls on the Ministry of Education and of complicated procedures for gaining approval of expenditures, mistakes are often made in procurements or payrolls. Often, the ministry cannot provide equipment and supplies, or even issue paychecks, on time. "This has very serious implications for the Ministry of Education which, being the largest institution, if there are delays in payments or mistakes covering a large enough group of teachers, which is rather common, the Ministry of Education has to face periodic work stoppages and strikes organized by the teachers' unions," Rojas (1984: 167) notes. "This can occur several times during one year."

Planners of education reforms must also be sensitive to the fact that at

some point excessive centralization and bureaucratization undermine the very control that centralized structures are designed to achieve. Rojas (1984: 176–177) describes the phenomenon in the Ministry of Public Education in Costa Rica:

> Because of the way the whole system of State institutions is organized, the Minister and Viceministers have so many tasks to perform relating most of the time to details rather than the substantive work of the institution, that there is very little time for internal institutional exercise of power and control as such. Because it is such a big institution, and because it is hierarchically organized, heads of higher administrative units cannot often control or keep track of all that happens in administrative units and with personnel under their supervision. The rational hierarchical principle does not operate as conceived. When authority is exercised, it is effective but, most of the time, there is a degree and quality of "independence" or "autonomy" within the structure such that many of the people and units carry out their functions in a very atomized, independent and uncoordinated way, rather than in the rational way that bureaucracies are said and expected to operate.

Rojas observes another phenomenon characteristic of many large, complex, and highly centralized bureaucracies. "The rationality of the institution is so limited that the explicit form does not correspond many times to the functions that are actually performed," she notes. "The system is also very vulnerable to situations in which the head of a lower level unit makes a decision and the higher level boss disapproves of the decision and publicly makes it known, unauthorizing the person that gave the order. This undermines the whole system of authority and decision making." As a result, the system slows down and becomes inefficient because few people are willing to make decisions or take responsibility. The fear of being overruled by higher authorities or reprimanded for making a decision that is contrary to the desires of top officials makes expeditious decision-making impossible.

Where the links between the national education ministry and the schools are weak, the ability of central officials to influence activities in the schools is limited despite the image of hierarchical authority conveyed by formal organization charts. In these circumstances projects for reform that depend on eliciting compliance with central bureaucratic directives will almost always fail.

Decentralization of the Education System

Many governments in developing countries are beginning to decentralize responsibilities for administering and financing primary and second-

ary education because of increasing dissatisfaction with highly centralized control, because education systems have become larger and more complex, and because of severe financial limitations on the ability of the central government to expand and improve education. Planners of education reform projects must assess the four major types of decentralization that are being tried in developing countries: deconcentration, delegation, devolution, and privatization (Rondinelli and Nellis, 1986).

Deconcentration is the most frequently used and the most limited approach to decentralization. It involves handing over some administrative authority or responsibility to lower levels of central government agencies. It gives local staff some discretion for planning programs and for adjusting central directives to local conditions.

In Costa Rica, for example, the administration of public education was formally deconcentrated through administrative regions at the beginning of the 1980s (Rondinelli and Zurcher, 1987). The country was divided into nineteen regions, each with a well-defined geographical territory and subdivided into Educative Circuits consisting of one or more administrative districts. The Planning Division of the Ministry of Public Education and the Regional Directorates determine the number of teaching nuclei. The director of each region coordinates and executes education plans and programs and enforces regulations established by the Superior Council of Education. The regional director has a technical division, with appropriate specialists, that provides orientation and suggestions to the planning officers in each region. An administrative office assists in guiding the schools toward achieving national education objectives. The regional directors administer education programs in their areas.

Each of the circuits has a supervisor who is responsible for inspection at all levels except higher education. Local governments nominate and provide some of the funds for *Juntas Administrativas*, whose members are honorary and appointed by the governor of the province. Each Junta Administrativa has a president, a vice-president and a secretary whose appointment must be approved by the MEP. The Junta Administrativas supervise standards of discipline and morality. They also oversee construction, maintenance, and expansion of school buildings and assure that they have the appropriate furniture and supplies. The Juntas Administrativas have tax revenues assigned by law to cover these costs.

Each school district must also have a *Junta Educativa*, the members of which are nominated by the municipal governments in accordance with Article 41 of the Fundamental Law of Education. The Juntas Educativas oversee discipline, morality, and hygiene in the public schools and in those private schools that operate in public buildings. They see that all children of school age attend school.

The government of Peru also deconcentrated educational administra-

tion by creating eight regions that have responsibility for coordinating educational activities. Within each region local education institutions are consolidated into a network at the district level called a "nucleo educacion communal." The nucleos can adjust national education standards and adapt teaching practices to meet local social and economic needs and cultural characteristics (Cowen and McLean, 1984; Schiefelbein, 1985).

Delegation is a more extensive form of decentralization. It transfers management responsibilities for specific functions to units such as public corporations, regional development authorities, or semiautonomous project management units. These organizations usually receive authority to perform specific education functions but are responsible to the central government.

The government of Argentina, for example, actively involves banks, the police, the Air Force, trade unions, and other institutions in forming and financing "associated schools." National and provincial education budgets in Argentina provide funds only for the costs of constructing school buildings and teachers' salaries. Educational equipment, supplies, and materials are all provided by parents and by cooperatives set up by parents, teachers, and leaders from commerce and industry in each school district (Cowen and McLean, 1984).

In many developing countries the state "delegates" public education functions to nongovernment organizations through subsidies and assistance. In Chile non-fee-paying private schools, such as those run by missionaries or other religious groups, receive financial assistance from the government. In Paraguay and Guatemala the government subsidizes private schools by paying the salaries of some of their teachers, by providing lump-sum grants, or by providing a fixed amount for each student enrolled or for each day a student attends school. In some states in Mexico the government pays the salaries of community instructors through groups of elders (*patronatos*) in the community. Teachers are responsible to the *patronatos*, who set standards of teaching quality and supervise the teachers' work (Schiefelbein, 1985).

Devolution involves strengthening subnational units of government—such as states, provinces, or municipalities—to handle a wide range of public functions, including education. In his study of nonformal and vocational education in developing countries, Coombs (1974: 213) found that "building up adequate personnel and institutional capacities at the regional and local level is clearly the necessary condition for fashioning and operating educational programs that are suitable to local conditions and form an essential part of the local development effort." Many governments are finding that devolution of responsibilities and the creation of administrative capacity at the local level is also important in formal education. In Brazil and Chile, for example, the central government has trans-

ferred responsibility for most education functions to municipalities. In Brazil about 65 percent of primary school expenditures are now made by state governments, and 25 percent are made by local governments (World Bank, 1986a). Mexico has shifted both administrative and financial obligations to state governments and local communities. Argentina has devolved primary education functions to provincial governments, while retaining control at the national level over planning, coordination, teacher training, research, and methodology development. In Colombia responsibility for primary and secondary education has been decentralized to the departmental level. Each department maintains a regional fund for financing education. The central government contributes about 20 percent of the costs, and localities provide the remainder through tax revenues.

In countries where central governments have devolved responsibility for education, they usually encourage the participation of parents in school activities and especially in financing improvements in educational quality. Parent contributions are an important aspect of school finance in many countries with locally controlled school systems. Private contributions average as much as 30 percent of the cost of rural primary schools in many areas of Colombia (Schiefelbein, 1985). In Brazil private sources contribute about 23 percent of all education costs (Cowen and McLean, 1984).

Privatization occurs when governments divest themselves of functions by transferring them to private voluntary organizations or allowing them to be performed by the private sector. Private education has a long history of tradition in developing countries colonized by European countries. In recent years the increasing financial pressures on public education systems and the growing desire of some organizations and groups of parents to attain higher levels of educational quality, have fueled a growing trend toward privatization of primary and secondary education. In much of Latin America private schools tend to provide better overall instruction than public schools at both the primary and secondary levels, offer instruction in foreign languages, dance, music, crafts, and vocational skills in lower grade levels, and provide better sports and educationally related recreational activities (Schiefelbein, 1985).

The potential benefits of supporting private schools are numerous. Studies by the World Bank (1986b) point out that privatization gives parents and communities more direct local control over the staffing and direction of the school; allows parents and the community to set standards of quality for the education of their children; and increases the ability of teachers, administrators, and parents to tailor school programs to community needs and conditions by adding programs to the required basic curriculum. Private education promotes closer relationships between the schools and the community and gives parents a greater opportunity to

participate more directly in the educational process as well as in fund-raising activities. Privatization can also improve the internal efficiency of schools by encouraging greater competition among them; lead, as the result of greater competition, to more educational services being offered and a wider choice of schools for parents and students to select from; and result in more efficient use of national resources to improve the overall quality of education (World Bank, 1986b).

Decentralization is not, of course, an end in itself. Rather, it is a strategy for restructuring a school system to accomplish its goals more effectively and efficiently. Each of the approaches to decentralization—deconcentration, delegation, devolution, and privatization—has both strengths and weaknesses. The nature of the tasks to be performed and characteristics of the environment in which the organization operates determine the degree and type of decentralization that is appropriate. Sequential routine tasks that can be carried out in a highly stable environment can be managed effectively by a centralized system. But innovative tasks that require large amounts of information and an adaptive management strategy and that must be implemented in an uncertain environment will usually require the decentralization of authority, responsibility, and resources.

Decentralization is important for implementing innovative activities because the ability of project staff to get changes adopted usually depends on their ability to work closely with clients and beneficiaries. As decision-making responsibility is pushed down the organizational hierarchy in any organization, decentralization encourages professional staff to become generalists rather than narrowly focused technical specialists and to apply more creative and responsive approaches to problem-solving in order to advance within the organization. Decentralization leads to a more competitive climate. As managers are able to exercise more autonomy, they tend to respond to problems with greater ingenuity (Gibson, Ivancevich, and Donnelly, 1973).

Indeed, the efficient and effective administration of many routine functions requires some degree of decentralization. Even limited forms of decentralization, such as deconcentration, can provide more flexibility and allow administrators to respond more effectively to local needs. Officials involved in nonformal education programs in Thailand, for example, point out that deconcentration of responsibilities to regional, provincial, and district organizations in that country allowed them to respond more effectively to both the goals of the program and the policies of the Ministry of Education. It helped them to identify "target groups" for their programs more effectively, to propose projects that more closely met the needs of different communities in their districts or provinces, and to make curriculum and content more relevant to people's needs and desires (Hugkuntod and Tips, 1987).

The success of a series of projects for educational reform in the Yemen Arab Republic depended heavily on a decentralized organizational structure that was well-suited to the needs of that largely rural country (Middleton, 1986). After experiencing serious implementation problems in early projects, national government officials created the necessary institutions to carry out the project at the local level. Community councils in villages and district councils monitored the performance of district training centers. Both secular and religious leaders were asked to participate in the program to help ensure cooperation among all government agencies associated with nonformal education. Management problems diminished when new local institutions were created and when local organizations began to participate in the program. Local development associations and community councils were asked to make their demands known so that appropriate decisions could be made about the types of skill courses that were needed and the kinds of expert assistance that would have to be provided. The decentralized organizational structure produced constant adaptation to local needs, including changes in curriculum, scheduling, and content. For example, changes were made in the Basic Training Scheme project based on lessons learned from local experience, reductions were made in the duration of basic skills courses to accommodate larger numbers of participants, and more courses were offered to women.

Studies of development projects in other countries conclude that decentralization increases the speed with which nonroutine decisions are made and with which innovative technologies are introduced and allows project organizations to be more productive and efficient (Hannah, 1984). Decentralization facilitates interorganizational cooperation by giving local school officials and teachers greater authority to make decisions and by allowing them to use many communications channels. It can raise staff morale and initiative, generate new leadership, and encourage participation by beneficiaries.

One of the factors accounting for the success of education reform projects in Ethiopia was a decentralized organizational structure that encouraged the participation by students and parents (Middleton, 1986). Student commitment to the program increased when an out-of-school community work program was used to teach practical skills and give students a chance to apply what they had learned in the classroom. This work was performed under the supervision of peasant associations, school management committees, or small political units known as Kebeles. Through these units education administration was decentralized to the district level.

Experience suggests that successful implementation of decentralization policies requires strong political and bureaucratic support, attitudes, and values within the organization or system that are conducive to decentralization, carefully designed programs that are implemented incremen-

tally, and adequate investment of financial and human resources (Rondinelli and Nellis, 1986). Even when education reforms are successfully designed and implemented, however, they must be reinforced by careful training of the personnel involved and by resolve on the part of top officials in central ministries and agencies to allow the reforms to work as they were designed. Often personnel who have long experience with a centralized system of authority or who have been adversely affected previously by changes that were more rhetorical than real will respond slowly to reforms that provide them with more autonomy or to changes that require them to be more innovative and creative. Rojas (1984: 361) observed that in Costa Rica personnel were reluctant to exercise the new powers they received under the regionalization reforms during the early 1980s until they received repeated reinforcement from the Ministry of Education.

In other countries central ministry officials have undermined decentralization or attempted to regain lost authority. Although the responsibility for primary and secondary education is now formally assigned to state governments in Mexico, for example, the federal Ministry of Education still maintains strong control over curriculum, administration, and finance. Because it retains control over funds that many poorer states lack, it still exercises strong influence over education policy in those states (Cowen and McLean, 1984). In Peru regionalization has been weakened by the Ministry of Finance's control over the education budget and its power to review and approve regional education expenditures. The Ministry of Education also retains tight control over administration and the allocation of financial resources to localities. Occasionally, the Ministry of Education attempts to recentralize some functions by weakening or abolishing nucleos (Schiefelbein, 1985).

Planners and managers of education reform projects must assess the structural characteristics of education systems, the amount of decentralization that is possible within the system, and the complex relationships between the central government and local administrative units, nongovernmental organizations, and private institutions in carrying out education reforms. Planners must identify the organizations that are involved in making education policy and delivering services, and the characteristics of their organizational structures, in order to determine which ones are most likely to implement education improvement projects most effectively.

Alternative Organizational Structures

The structures of organizations that provide education services in developing countries differ for a variety of reasons. One is the degree of

uncertainty in the environment and the corresponding need for an organization to acquire and use information quickly. A second is the nature of the tasks an organization seeks to carry out and the "production technology" it employs. For example, tasks that can be broken down into specialized functions, such as textbook distribution, demand different structures and technologies than those that are iterative and interactive such as team research. A third reason is that powerful individuals or groups may restructure an organization through organizational politics. Finally organizational structures differ in the ways they allow members to deal with uncertainty and innovation. In every organization there is some degree of tension between maintaining stability and promoting change. Leaders must find an appropriate balance between performing routine tasks efficiently and responding quickly to the challenges of environmental uncertainty and innovation. Thus the structure of an organization is influenced by both objective and subjective factors, making organizational design or redesign a complex process (Gibson, 1980).

Research on organization structures is extensive, complex, and difficult to summarize briefly. However, planners must assess four basic structures that are discussed frequently in the management literature: functional, divisional, project implementation unit, and matrix. Mintzberg (1979) identifies nine forms that elaborate on these basic types. The characteristics of these structures allow them to support different management strategies.

Functional Structure

Functional structures are appropriate for relatively routine tasks that can be performed sequentially and repeatedly in stable environments. In organizations with functional structures each unit is responsible for specialized functional tasks—planning, operations, budgeting, accounting, and supervision—enabling the organization to concentrate specialized skills on and achieve efficiency in routine operations. Functionally structured organizations are usually hierarchical and often highly centralized. Coordination is provided by top management. Figure 7.1 illustrates a typical functional structure for education administration.

This is the classic structure for organizations using a mechanistic management strategy. It is strong on specialized task efficiency but is characterized by narrow specialization and relative inflexibility in the face of change. As the size of the organization grows, however, the coordination and communication burdens become very heavy and are made even more difficult by the narrowly specialized views of organization members. Value orientations that fit well with this structure include large power distance, high uncertainty avoidance, and high levels of collectivism.

A limited degree of decentralization can be introduced when there is a

Figure 7.1 Functional Organizational Structure

greater need for coordination and communication by increasing the authority of lower-level units within the functional divisions, particularly of field units that are geographically distant from headquarters. However, a functional organizational structure has limited ability to respond to pressures from growth, from increased environmental uncertainty, or from new tasks.

Divisional Structure

Some organizations are structured into divisions that are based on geographical areas of service, clients and markets, or products. For example, a ministry of education may be divided into units that deal with primary education, secondary education, higher education, vocational education, nonformal education, and so forth. Each division may have its own functionally specialized subunits. Figure 7.2 presents two typical divisional structures for education institutions. These structures illustrate "divisionalization" by client group and type of product in one chart and by geographic area of service in the other. In both organizations the integrative function is located one level below that of top management.

The administration of nonformal education in Thailand is a good example of divisional structure. The Nonformal Education Department is one of many "product" oriented divisions and is concerned only with the delivery of nonformal education services. The department has both specialized technical divisions for planning and research, curriculum development, operations, educational technology, and supervision, and geographical divisions at the regional, provincial, and district levels (Hugkuntod and Tips, 1987). Although it is a centralized structure, the geographic divisions acting as field offices deconcentrate some activities territorially.

Figure 7.2 Divisional Organization Structures

By moving authority away from the top, divisionalization increases the ability of the organization to acquire and use information by aligning responsibilities with elements in the environment. Unlike functional units, divisions organized around clients or geographic area of service have a greater capacity for gathering information, for consulting with clients, and for eliciting the participation of beneficiaries. With this structure organizations can use open-mechanistic management strategies. With greater decentralization of responsibility and authority to professional subunits, such as research and development centers, organizations with a divisional structure can also employ a professional-adaptive management strategy.

Problems of coordination and integration can arise in both functional

and divisional structures, however, especially if they are highly centralized and use mechanistic management strategies. Rojas (1984: 177) points out that in Costa Rica education policies and programs are often uncoordinated because of the highly specialized and segmented nature of decision-making in a ministry that is centralized and hierarchical. "The provision of different services generally takes the form of separate administrative units for each service (special education, technical education, adult education, preschool education, etc.). Even though they belong to a larger, common unit, these services usually operate quite independently and outside the hierarchy. For example, lower-unit officials may often break formal communication and authority channels and reach higher officials and make decisions without communicating or without the knowledge of their bosses."

Other problems arise from the tendency for local school officials or teachers in some countries to by-pass district, provincial, or regional officials. They go directly to the heads of functional units or divisions in the national ministry to obtain services or equipment and to get decisions made expeditiously. If the divisions do not meet all of the needs of those responsible for implementing projects or for delivering services, principals and teachers try to obtain the resources they need by going directly to top management or to political leaders who can put pressure on the ministry.

In Costa Rica teachers and administrators who avoid going through channels at the local and regional levels and who are able to go directly to the ministry often receive resources that others are not able to obtain through regular channels. Because decision-making in a functional hierarchy is so slow and uncertain, getting decisions made often requires teachers or administrators to go to the ministry personally to get someone in authority to make the decision and then to see that the things promised are actually done. Rojas (1984: 180) observed that in the past this "short-cutting" of the hierarchical structure reinforced "the patterns of unequal distribution of benefits in favor of those that already have them." Those who have the courage and the resources to go to the ministry, who have political or bureaucratic contacts, or who work close to the capital city or to Ministry of Public Education offices often end up getting more resources than those who do not.

The divisional structure of the Ministry of Education in Costa Rica also creates difficulties in getting qualitative changes or reforms implemented or in performing functions that are interdisciplinary or that require cooperation among divisions. Rojas (1984: 361) points out that the divisions "become like closed enclaves belonging to a number of people entrusted to do a specific task in which others are not to intervene or interfere. This conflicts with tasks in education which have to be integrated and cannot

be divided into little pieces and distributed in different pieces." The division of the ministry into specialized departments has made it difficult, for example, for curriculum advisers from different subject areas such as adult education and agricultural education to cooperate.

In organizations with divisional structures members need the ability to deal with uncertainty and must be willing to take on individual responsibility and seek information from the environment in which they work. The need for critical feedback increases the importance of creating greater trust between lower- and upper-level managers, and, hence, there must be a somewhat smaller power distance between superiors and subordinates.

Project Implementation Unit Structure

International assistance organizations often require governments in developing countries to establish separate management units to implement projects. These project implementation units may be semiautonomous government entities or nongovernmental organizations operating under government grants or contracts. The potential of such organizations to use adaptive management strategies is relatively high given their structural characteristics. They are often outside the civil service and are relatively free to experiment with different organizational structures and management processes. However, their ability to act autonomously may be limited by the fact that many of these organizations are relatively weak in staff and resources. Their effectiveness depends on having autonomous powers, adequate resources, and the ability to attract high-quality staff who can manage effectively.

The advantages of creating a special project unit for innovative activities is that it allows the unit to adapt more flexible and responsive management processes than might otherwise be acceptable within a government bureaucracy. A separate management unit gives the project visibility, unity of purpose, and control over resources and staff. The project can develop a management structure conducive to its activities. Resources can be protected from use by other units in the organization. By placing innovative tasks or projects in separate units, it is easier for the implementing organization (and international donors) to monitor and evaluate results.

Often, the only way new education programs can be initiated, especially when established institutions have not been providing adequate services, is to create a new and autonomous implementing organization. This is what the government of Mexico did, for example, to extend education to rural areas during the 1970s. Political leaders established CONAFE, which could operate autonomously from the highly centralized and bureaucratized federal Ministry of Education (Paul, 1982). With indepen-

dent financial and administrative authority, CONAFE could develop its own programs, recruit suitable teachers, develop its own teaching materials, and adapt them to local conditions. Organizing CONAFE as an independent program allowed the organization much greater flexibility than if it were part of the Ministry of Education.

But creating separate project implementation units can also have potential disadvantages, especially when the project is temporary and the results must be adopted by regular operating agencies later. Often there are high costs to setting up temporary organizations and acquiring facilities and equipment to serve each project. Sometimes staff assigned to or recruited by the project implementation unit feel insecure knowing that the project is temporary. Also, isolating the project in its own unit can create potential problems when the project is completed and the outputs or results must be transferred to education institutions that did not previously participate in its activities.

Matrix Structure

An organization with a matrix structure can be responsive to environmental uncertainty and task innovation, but it is often the most difficult to manage. Figure 7.3 shows that in a matrix structure functional departments and project groups have equal weight and authority. Each project unit pursues its substantive goals under the direction of its own manager and staff, but each project receives functional support—accounting, personnel services, procurement, contracting—from a functional unit of the ministry or department to which it reports.

One advantage of a matrix structure is that it allows managers to coordinate activities across functional or departmental divisions. The project manager can draw from all of the functional and technical divisions of the organizations to obtain resources and assistance. The project is identified as a separate unit within the organization and its activities gain greater visibility. Moreover, once the project is completed the matrix unit can be terminated with little disruption to the organization and with a minimum of dislocation for project staff. Staff members are either assigned to a new project or return to a functional or divisional unit within the organization.

This structure achieves the efficiency of a functional organization and the adaptability of a project unit. The equal weight of authority given project units facilitates decentralization, information acquisition, and use; each unit is thus more responsive to innovative tasks and uncertain environments. It requires a staff that can accept and deal with uncertainty, take individual initiative, and share power.

The potential disadvantages of the matrix structure are that the project has few resources of its own and the manager has little control over the

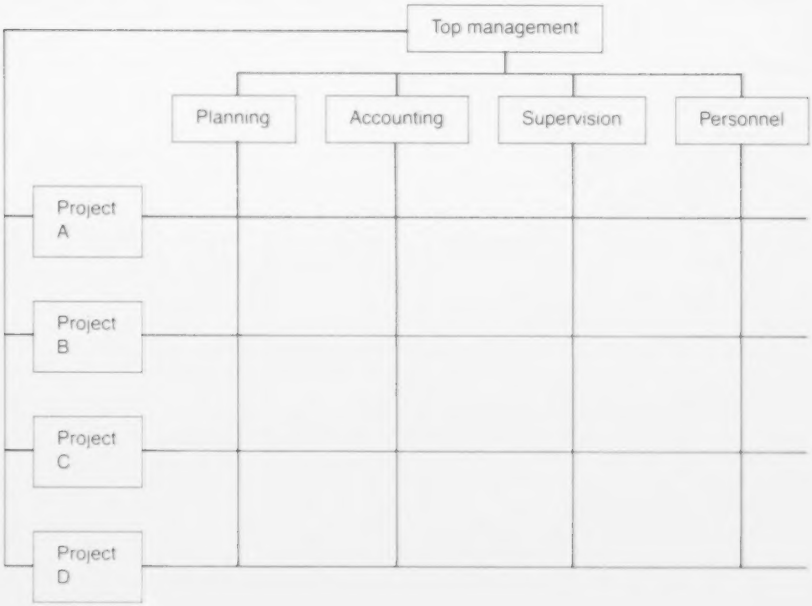


Figure 7.3 Matrix Organization Structure

resources and services needed to achieve the project's objectives. In a sense the project manager is at the mercy of division heads to provide the resources needed to implement project tasks. The project manager also lacks control over project staff, who are usually seconded from functional units or technical divisions. In addition, when an implementing organization has many projects, its resources may be spread too thin.

Giving equal weight to functions and projects also complicates the management process by creating two integrative functions. The top integrative function is balanced by an integrative function for projects. In the example shown in figure 7.3 projects are organized by clients and products. In this case the project integrating function is concerned with coordination across client groups and projects and with negotiating on behalf of projects with top management. Even when staff are seconded full-time for a definite period, there are natural tendencies for staff to want to maintain a base in the permanent functional department. In organizations with matrix structures top-level managers must give authority to project leaders, train and socialize staff, and provide incentives for performing tasks successfully. The overhead costs of training, communication, and coordination can be quite high. Staff must be able to work under

conditions of uncertainty, and project managers must be willing to take individual responsibility for carrying out their tasks. Organizations with this structure require managers and staff who can coordinate and communicate effectively.

A matrix structure encourages top management to decentralize some authority to the project unit. It allows the project unit to have some measure of authority as well as some freedom to acquire resources from functional departments. It also facilitates the transfer of project results because experienced staff who have produced those results return to functional departments or technical divisions. The matrix structure can accommodate both open-mechanistic and professional-adaptive management strategies.

Structural Hybrids

Hybrid structures are often created to implement changes under conditions of uncertainty. This is important for education projects in developing countries where administrative capacity and the ability of organizations to change radically are both limited. Although many combinations are possible, three are illustrated here: functional-divisional structures, divisional-matrix structures, and interagency coordinating committees.

Functional-Divisional Structures

Education reform projects are often implemented in developing countries by organizations with a combination of functional and divisional structures. Functional units have responsibility for routine tasks, such as school construction, payroll, accounting, and maintenance of statistical data bases. Technical divisions are organized by geographic location (by region or province) or by client group or technical specialization (primary education, secondary education). Divisional units in turn manage a combination of functional units, client-oriented divisions, and project teams (see figure 7.4). Organizations with this structure require different management systems for functional and divisional units to carry out tasks with different degrees of innovation and uncertainty. If managers explicitly recognize these different patterns as legitimate (and not as aberrations from "proper administration"), they can use both mechanistic and adaptive management strategies.

Different patterns of decentralized authority and autonomy further strengthen the capacity of this structure to accommodate mixed management strategies. A ministry of education may manage textbook printing and distribution for primary schools through a centralized, hierarchical structure for economic and logistical reasons, but it may grant secondary vocational schools considerable authority to develop skills training curricula to meet local needs.

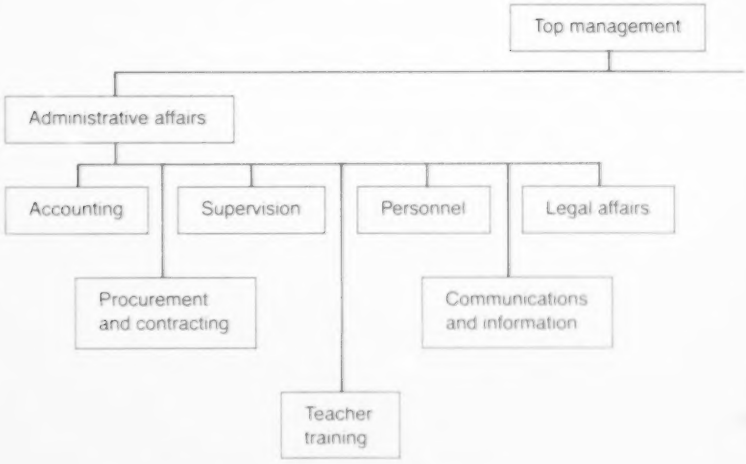
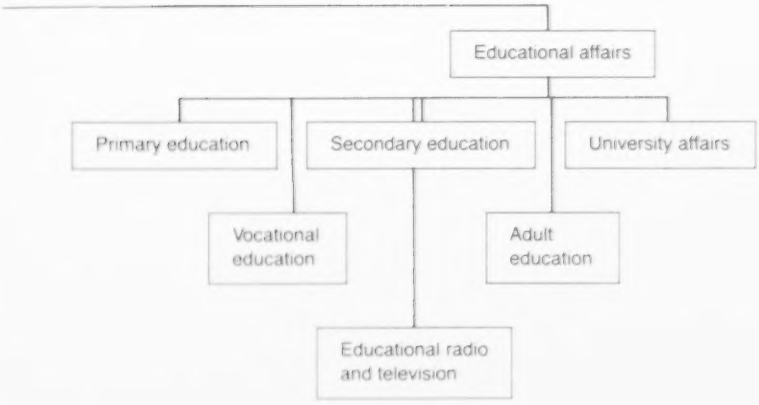


Figure 7.4 Functional-Divisional Structure

Divisional-Matrix Structure

Matrix structures link functional departments with temporary units implementing special projects or programs. Project units can also be created within divisions to achieve a relatively high degree of decentralization. For example, a primary school reform can be managed through project implementation units in each of the provinces where the reform is being implemented. The project unit draws on the functional resources of the provincial government and specialized divisions of the central ministry of education. Such a structure provides a relatively high degree of decentralization of national authority. However, it is based on the assumption that management and professional resources are available at the provincial level, and that the central ministry is willing to let provinces have considerable autonomy to implement the reforms. If these conditions are not present, they would have to be established, either prior to project implementation or through intensive investment early in the life of the project.

In the program to extend education to rural areas of Mexico, the program implementing unit, CONAFE, used a divisional-matrix structure for its own organization. It maintained centralized control over functions with scale economies such as purchasing, technology selection, and information processing and provided services to state-level committees that supervised the program at the local level and to community committees that actually implemented the program. Community committees could also obtain assistance from the state committees. CONAFE decentralized



the allocation and control of funds to state committees along with supervision responsibilities and control of field activities. State- and community-level committees shared responsibilities for raising resources and designing and delivering education services (Paul, 1982).

The divisional-matrix structure illustrates the critical importance of keeping management processes compatible. Effective implementation of a project at the state or provincial level through project units relying on divisional support at the center, and on functional units of other state or provincial governments, would require, among other things: (1) performance-based plans, policies, and position descriptions; (2) personnel systems that provide incentives and rewards for individual achievement and for the provision of critical feedback; (3) monitoring and control processes that encourage the adjustment of plans and rapid data gathering and reporting; (4) use of ex-post controls; (5) coordination by plan; and (6) planning and decision-making processes that emphasize incremental adjustment during implementation to meet agreed upon goals.

Interagency Coordinating Committee

Coordinating committees or task forces are temporary organizations established by several agencies to carry out projects of mutual interest. They tend to have project implementation unit or matrix structures. Interagency coordinating committees—composed of representatives of many departments or agencies that will be involved in or affected by a project or of representatives of interest groups whose support is necessary

to implement a project successfully—can be useful when a single organization cannot implement a project on its own or when a coalition of groups is necessary to achieve objectives. When interagency coordinating committees work effectively, they can achieve better coordination among various organizations required to support or make inputs to the project than can a single implementing agency. They can help prevent or settle interorganizational conflicts. They can draw on the expertise and information of a variety of specialized organizations.

Often, however, interagency committees are more useful for planning and design than for implementation because they constitute an unwieldy structure for day-to-day management. Once a project is underway, it is often difficult to get top-level representatives from each organization to attend working sessions or coordination meetings. Authority is often delegated to lower-level representatives who have to get the approval of their superiors before taking action. The fragmentation of authority for decision-making can slow down operations, increase costs, and lead to confusion and uncertainty. Finally, when projects are managed by committees made up of members with different goals, objectives, and resources, there is either conflict among the participating organizations to take control of the project, or no organization is willing to take "ownership" of the project.

Task forces composed of representatives of several agencies and of nongovernmental organizations are a variation on interagency coordinating committees. They are often used to make recommendations about education reform or to initiate changes in education on a broad scale. In order to regionalize the education system in Costa Rica during the early 1980s, for example, the minister of public education had to set up an ad hoc "parallel structure," made up of commissions and task forces to review needs, make recommendations, and design reforms because of opposition to regionalization among many ministry bureaucrats. The commissions were carefully composed of ministry officials who were open to the idea of change and other professionals, education experts, teachers, administrators, and citizens. The parallel structures were the only means of getting the widespread participation of interest groups whose support would be needed to get the changes approved. Using commissions was the only way to overcome the obstacles that would be raised by officials within the ministry who feared that changes would reduce their power, eliminate jobs, or constrain opportunities for promotion (Rojas, 1984).

The success of interagency coordinating committees usually depends on the extent to which clear authority is granted to the lead agency and their activities are supported by higher levels of government. Ideally a coordinating body is established through "negotiated authority," with each participating organization surrendering some authority to the lead

agency. Coordination by plan is a weaker form of coordination. Because it is difficult for line ministries to share authority, successful coordinating committees are relatively rare. Project planners must not only understand the formal structure of education institutions, but also how management processes actually operate.

Although organization charts may indicate that education institutions are structured in a particular way, this does not mean that the structures have been well planned or effectively designed. Rojas (1984: 180) points out that in Costa Rica, for example, the "whole system of administration of institutions located in the regions had been organized mostly according to what at the moment was politically convenient for the party in office, not according to the criteria of rational planning or administration."

Summary

Projects are almost always implemented by existing organizations. Only rarely can planners create an entirely new organization with an "ideal" structure. In developing countries organizations with different legal bases have different potential capabilities to restructure themselves to meet the management requirements of education reform projects (Rondinelli, 1983a).

Most internationally financed education projects are managed by ministries. Some are organized by function and others by division. Either structure may allow for some degree of decentralization. Organizations with functional or divisional structures are most appropriate for mechanistic management strategies and, with greater divisionalization and decentralization, open-mechanistic management strategies.

But even central ministries can create structures that meet the requirements of professional-adaptive management strategies. One way is to create research and development units (a university institute or curriculum development center) or a project management unit, with some autonomy, that shares staff with the line ministry. A second way is to create a semiautonomous project implementation unit, formed from line ministry staff, as a temporary organization.

Some ministries attempt to undertake innovative projects by creating matrix structures. Many problems can arise during implementation, however, if the ministry fails to extend the new structure deeply enough into the organizations and to build strong communication linkages. The failure to link the matrix structure with higher authority so that access to decision centers is assured or to establish appropriate levels of decision-making authority within the organization are equally prevalent problems (Middleton, 1986).

Peter Drucker (1964: 216) has written that "the right structure does

not guarantee results. But the wrong structure aborts results and smothers even the best directed efforts." Organizational structures are designed to support specific types of management processes. Although most education systems in developing countries are highly centralized, some degree of decentralization is being introduced through deconcentration of central government powers and responsibilities, delegation, devolution, and privatization. Whatever arrangement is used, management processes must be appropriate to the degree of uncertainty in the environment and the degree of innovation in project tasks. We would thus modify Drucker's conclusion, replacing the term "the right structure" with "the right configuration of management strategy, management processes, and organizational structure."

CHAPTER EIGHT

Formulating Implementation Action Plans

TO APPLY THE CONTINGENCY approach in designing management strategies for education reform, planners first analyze the management requirements of a proposed education project and the management capacity of implementing agencies and then use the results to design more effective implementation plans. As we explained in chapter 3, contingency analysis involves four phases. First, planners do a *management requirements analysis*. They identify the tasks to be performed, assess the level of innovation and the degree of uncertainty in the environment, and then determine the appropriate management strategy for implementation. Second, they perform a *management capacity analysis*. They assess the management processes, organizational structures, and values of the intended implementing organizations. Third, planners make a *feasibility analysis* by comparing the management requirements of a proposed project and the management capacity of the implementing agency. When there are incompatibilities—that is, large "gaps" between management requirements and capacity—they identify ways of making the management requirements of the project and the management capacity of the implementing agency more congruent. Finally, they formulate *implementation action plans*, that is, interventions for organizational change to increase management capacity in the implementing agency and for project redesign to make tasks less innovative so that management capacity and management requirements are more compatible.

Underlying the contingency approach is the assumption that education reform projects are more likely to be implemented successfully when the characteristics of the environment and of their tasks are compatible with the management strategy, management processes, and organizational structure of the implementing institution. Planners can increase congruence by mapping an appropriate pattern of management processes and organizational structures using the Management Assessment Profile (MAP) in table 8.1. The MAP provides a conceptual framework for analysis and design. It lays out the full range of contingency variables associated

145

Table 8.1 Management Assessment Profile (MAP)

Environmental uncertainty	Very low	Low	Moderate	High
Task innovation	Routine	Moderately routine	Moderately innovative	Highly innovative
Management strategy	Mechanistic	Open-mechanistic	Professional-adaptive	Adaptive
Management processes				
Planning	Long-range comprehensive	Mid-range contingent	Mid-range incremental	Short-term incremental
Decision-making	Highly centralized	Centralized	Partially decentralized	Decentralized
Authority	Hierarchical	Consultative	Shared	Collegial
Leadership	Command	Consultative	Interactive	Participatory
Communication	Vertical, formal	Vertical	Interactive	Interactive, formal and informal
Coordination	Command	Negotiated authority, plan	Negotiated authority, plan, facilitation	Negotiated authority, plan, facilitation, mutual adjustment
Controls	Strong ex-ante	Moderate ex-ante	Mixed ex-ante and ex-post	Ex-post
Monitoring	Control performance	Assure conformance to plan	Adjust implementation	Adjust strategy and implementation
Staffing	Functional	Functional	Objectives	Objectives
Incentives	Monetary, job security	Monetary, job security	Service, professional	Service
System structure	Centralized	Deconcentration	Deconcentration, delegation, privatization	Decentralized
Organizational structure	Functional, divisional	Divisional, matrix	Matrix, PIU	PIU, matrix

Source: Compiled by the authors, after Likert (1967).
Proposed project management requirements
Existing management capacity ——

with different management strategies under different degrees of environmental uncertainty and task innovation. Planners can use the MAP to show graphically the differences between the management requirements of a proposed project and existing management capacity (Likert, 1967).

If the analysis indicates large discrepancies between management requirements and management capacity, planners can devise two kinds of implementation plans: those for organization development that expand the capacity of the implementing agency to manage the project as it was initially designed and those for modifying the project design to reduce the levels of innovation and uncertainty. In this phase of the analysis planners use the results of phases 1, 2, and 3 to formulate implementation action plans.

Contingency analysis helps planners select or design effective management strategies to implement education reform projects. In most situations the level of uncertainty in the environment is taken as given. Although the degree of environmental uncertainty may change during the life of the project, planners consider these changes to be largely beyond the influence of the implementing organization. This leaves values, management strategies and processes, organizational structures, and the degree of task innovation as the elements of a project they can modify or change in order to achieve a higher level of congruence between management requirements and management capacity.

In some situations planners can suggest actions to decrease environmental uncertainty—for instance, by organizing a project as an independent implementation unit with all of the resources it needs to accomplish its tasks. When it is not possible to decrease the level of environmental uncertainty, planners can only change management processes to accommodate the proposed level of innovation, change the level of innovation to accommodate current management capacity, or some combination of the two.

Organization Development

Organization development is generally the first option planners should consider when management capacity does not meet requirements. Organization development is a deliberately planned set of interventions to change beliefs, attitudes, values, structures, or management processes in order to improve the operational effectiveness and efficiency of the organization so that it can achieve its objectives. Interventions are usually applied throughout the organization in an attempt to bring about system-wide changes. Organization development is thus more difficult than modifying the degree of innovation in a project during the design stage. Organizations are real; at this stage the project is abstract. On the other hand,

increasing management capacity to implement change is important for long term development. Thus, investment in organization development may be justified not only to improve the chances for successful implementation, but also as a way of contributing to educational, and even national, development.

In most cases expanding management capacity means changing management processes and structures to meet the requirements of an innovative project. The Management Assessment Profile focuses attention on the actions that are needed. Contingency analysis will result in two kinds of profiles on the MAP. The solid line on table 8.1 reflects the values, management strategy, management processes, and structure of the implementing organization. The dash line indicates the management requirements of project tasks. The "gap" between current and required management strategies defines the scope of organizational change that is needed.

The challenge to planners is to devise a set of interventions that will enable organizations to reduce the discrepancies. Taken together, these interventions constitute an organization development plan.

Organizational Change

Organizational change is needed when an organization establishes a new pattern of relationships with its environment and when it seeks to accomplish tasks with new and higher levels of innovation (Bedeian, 1984; Hellriegel and Slocum, 1982). The response can be reactive and incremental or planned more deliberately and comprehensively. Hence the process of organizational change can mirror the management strategy of the organization by being more or less adaptive.

Organizational changes may encourage new forms of work behavior so that members can adapt to new management processes and structures. New skills may be required. But plans for organizational change may also require people to find new ways of relating to others or to develop new perspectives on their roles and that of the organization. The changes may also call for hiring people with different values and objectives.

Action plans must also identify the ways in which managers can overcome resistance to change. Resistance to change is common in all organizations. It comes from many sources: inadequate understanding of the reasons for and implications of change; lack of trust in the organization's leaders; different personal perspectives on the goals of the organization; and ambiguity about the personal benefits of change. Basic social values may create low levels of tolerance for the uncertainty inherent in change. In short, acceptance of change by members of an organization depends on their understanding of its purposes and how it will affect them personally, as well as on fundamental social and cultural values (Bedeian, 1984).

Planners must also deal with other obstacles to change. The very purpose of organizing is to establish stable conditions necessary to accomplish goals. Sudden changes can threaten the relationships that give an organization its power and influence. Also the resources needed for an organization to adopt and institutionalize change may not be available. Finally, the network of legal and informal interorganizational relationships within which the organization functions may make change difficult (Hellriegel and Slocum, 1982).

The potential obstacles to change in most organizations make it difficult for planners and managers to bring about significant changes with just a few training programs. They must usually have a more systematic and detailed strategy of intervention.

Planning for Organizational Change

Planners must give serious attention to both the processes and instruments of change. The process is the set of procedures through which managers introduce changes in an organization; the instruments are the interventions or means that they use to implement changes (Gibson, 1980).

The process of organizational change, like all management processes, is contingent on context and task; that is, on the environment of the organization and on the degree of change to be introduced. These relationships are shown in table 8.2 (adapted from Gibson, 1980: 177). The implementation action plan for making changes in organizations, like management strategies for education reform, can be either mechanistic or adaptive. Choosing the most appropriate process depends on such factors as the time available to make changes, the degree to which members see the need for change, and the size of the organization. Other variables, such as the effects of controls or incentives on members' behavior, the expectations of beneficiaries, and the strength of resistance to change in the organization influence the decision about whether to choose a mechanistic or an adaptive process.

The diagnostic variables in table 8.2 form the context in which plans for the implementation of change are carried out. Depending on the nature of these variables, the process of change will be fast or slow, emanate from the top or from the bottom of the organizational hierarchy, or make use of a directive or participatory leadership style. A rapid, top-down, directive approach is consistent with mechanistic management. To the extent that the implementation action plan seeks to move an organization away from using mechanistic management strategies toward more open or adaptive strategies, the scope of change will be larger, and it will be necessary to use a slower, more bottom-up, and more participatory process of organizational change.

Table 8.2 Contingencies in the Implementation of Organizational Change

Management strategy	Mechanistic	Adaptive
Diagnostic variables		
Time available	Short	Long
Clarity of crisis or need for change	Clear to all	Clear to few
Size of organization	Large	Small
Effects of existing controls or incentives	Discourage initiative	Encourage initiative
Concentration of knowledge in organization	At the top	At the bottom
Expectations of beneficiaries regarding involvement in implementation	None	Extensive
Potential resistance	Small	Great
Power of change agent	Great	Small
Implementation variables		
Pace of change	Fast	Slow
Use of power	Top down	Bottom up
Leadership style	Command	Participatory

Planners must also identify the appropriate instruments or interventions for bringing about organizational change. These interventions must deal with the internal forces that determine employee behavior and with the external constraints on change. Change can be made internally by modifying the structures, processes, and values of an organization and by helping employees to adapt successfully to these changes. Changes in organization charts, written rules and procedures, job descriptions, work resources, and technology can change behavior, processes, and, over time, even values.

Communication, education, training, incentives, and facilitation help employees to adapt to changes in organizations. Depending on the nature of the plan of action, employee participation in the design and management of change is another useful instrument. Reinforcement of change through the continued use of these interventions is critical and requires close, continuous monitoring. Lippitt and his associates (1985: 100) have

found from long experience with organizational change that, at a minimum, the following steps must be followed if the plan is to be carried out effectively: (1) inform employees about the plan for change before actions are actually taken; (2) build a trusting work climate in which employees have access to information about the changes that will be made; (3) use problem-solving techniques to get at the real causes of difficulties within the organization; (4) involve employees in the implementation of change; (5) ensure an early experience of successful change; and (6) quickly stabilize and spread successful change.

Overcoming external constraints on change requires effective political action. Advocates of change must mobilize support to protect the organization's power base and resources and to loosen the binds of interorganizational relationships. Political and legal factors will determine the most appropriate instruments for mobilizing support. They range from establishing public information programs to mobilizing political coalitions. Loosening legal constraints may require new legislation. Obviously, the extent to which managers can use different types of interventions depends on the strength of advocates' political power. The weak political power bases of ministries of education in many countries are serious obstacles to changing environmental constraints.

Planners must identify the major interest groups or "stakeholders" whom reforms will affect and the extent of each stakeholder's support or opposition. Nutt and Backoff (1987) identify four major types of stakeholders that must be dealt with: (1) those who are antagonistic to change, (2) those who are advocates of change, (3) those who are problematic or neutral and can be influenced, and (4) those who are low-priority but need to be managed. Implementation action plans should include tactics for dealing with each group of stakeholders. Analyses should determine the prospects for reducing the opposition of antagonistic stakeholders and for building coalitions among advocates and neutral groups.

Planners can use information gathered from a contingency analysis and a study of the most appropriate strategies and instruments of change to design action plans to overcome internal and external constraints. The types of action that can be taken to change an organization's capacity to implement education reform successfully are summarized in table 8.3. All of the instruments are potentially relevant if the management strategy is oriented to change. The extent and nature of the changes to be made determine the range of instruments and the intensity of their use. Changing a mechanistic organization that already demonstrates elements of professional-adaptive management entails less change, and thus fewer instruments and resources, than does changing a purely mechanistic structure into one that will use an adaptive management strategy. Actions that can be taken to bring about change are discussed below.

Table 8.3 Elements of Organizational Change Action Plan

Dimensions of change	Focus	Instruments
Management processes	–Procedures –Technologies –Job descriptions –Work relationships	–Training –Incentives –Facilitation –Reinforcement –Participation
Values	–Employee attitudes –Work relationships	–Communication –Training –Incentives –Facilitation –Reinforcement –Participation
Organizational structures	–Authority –Organization charts –Written procedures –Job descriptions	–Communication –Training –Incentives –Facilitation –Reinforcement –Participation
	–Regulations –Legislation –Resources –Political support	–Public information –Coalition building

Changing an Organization's Management Processes. Management processes are inextricably related. Changing one usually requires changing others in order to maintain a coherent management strategy. Thus, when an incremental planning system is introduced in an organization, changes must be made as well in decision-making, authority, leadership style, communication patterns, coordination, monitoring, control, and staffing processes. Action plans for organizational change must identify the instruments that will be used to help employees bridge the gap between the current and the required management processes. Work behavior is influenced by formal procedures and job descriptions and by the skills and values of employees. All of these must change to match changes in management processes. For example, changes must be made in monitoring procedures so that they provide rapid, critical feedback on project implementation. Incremental planning requires interactive communication processes, clear delegation of authority, and the inclusion of new monitoring tasks in existing jobs. It also requires a conscious effort to

modify values within the organization to support those who give critical feedback.

The introduction of a new planning process in an organization may also require new rules and extensive communication and training to help employees adapt to new requirements. Incentives and reinforcement of new behaviors through coaching and feedback are also important.

Because changes in management processes involve new relationships among units and levels within an organization, training programs should include people from different management levels. Teachers, principals or headmasters, supervisors, and district and central staff of a school system, for example, all need to learn the implications of new procedures and tasks, not only to do their own work more effectively, but also to coordinate their work with those in positions above and below them in the organization. In projects requiring coordination with other agencies, training across organizational boundaries is also important. Whether the changes are made in a directive or participatory way, training programs should convey to people at all levels in the organization the rationale for changes, the new tasks that will be performed or procedures that will be used, the skills that will be required, and the new relationships within the organization and with other organizations that will result from changes in management processes. Employees need to know how and why their jobs will change.

Managers must establish the legitimacy of change quickly. If plans for change are to be carried out in a directive, top-down manner, this requires clear and continuing demonstration of support from all levels of management. If changes are to be made in a more participatory way, legitimacy must be established not only from the top down, but also from the bottom up through extensive communication, interaction, and consultation.

Changing Organizational Values. Significant changes in management strategies require employees to adopt new work behaviors. Planners must anticipate how changes can be made in employees' values and attitudes, particularly when an organization's current management strategy is grounded in fundamental values regarding authority and power, uncertainty, individualism, and gender-role differences that are antithetical to the new management strategy.

Changing from a mechanistic to an adaptive management strategy requires managers and staff to reorient their values and behavior. The effectiveness of incremental planning, participatory leadership, interactive communication, and decentralized decision-making depends on appropriate value orientations.

Values can be the strongest barriers to change. Yet they can be modified over time through training, socialization, incentives, and reinforcement.

Managers must use a comprehensive set of interventions to alter the forces operating on employee work behavior. Skills training without incentives, facilitation, and reinforcement will not change values. Nor will merely announcing changes or issuing new job descriptions.

The instruments that managers use to change values and behavior must be compatible with the characteristics of the organizational changes that are being introduced. Decentralizing responsibilities without making concomitant changes in performance evaluations and monitoring and control processes, for example, will be seen by employees not only as inconsistent but also as risky or dangerous for them. Finally, efforts to change values must be continued over a long period of time; one-shot efforts will rarely be effective. This requirement alone justifies the need for well-designed plans of organizational change.

Changing Organizational Structures. Structures, processes and values change together. Plans for structural changes in an organization, and especially in a public institution like a ministry of education or a school district, must anticipate ways of overcoming external constraints. Action plans must describe the changes that will be needed in regulations or legislation. Planners should suggest how public information campaigns and programs that generate demand for services can be used to mobilize public or political support and the financial resources needed to make structural changes.

Although internal obstacles may be handled with an appropriate combination of training, incentives, and reinforcement, external constraints are more difficult to deal with. Rigid civil service regulations are often a critical constraint on organizational change. Employees may feel threatened by changes in organizational structure unless appropriate changes are made in personnel policies. External rules and regulations may make changes in both organizational structure and personnel systems extremely difficult.

When planners cannot make external changes easily, they must resort to other options. A common option is to establish autonomous project implementation units. As we pointed out in chapter 7, the creation of a PIU permits more flexibility in designing new organizational structures and personnel processes. At the same time, it makes institutionalization of the project more difficult. Line agency personnel often resent the higher salaries of project staff, and project staff may be reluctant to return to line agency salary levels and working conditons when the project is completed.

A second alternative is to use incentives that do not require changes in civil service rules. If salaries cannot be changed, managers can use

bonuses, job enrichment, training opportunities, and promotions to motivate staff.

Planners must coordinate actions to overcome internal constraints with those designed to deal with external constraints. In some circumstances it is better to mobilize support to deal with external constraints first and then make internal changes. In other situations actions must be iterative; support for internal changes must be made both before and during efforts to mobilize support for external changes.

As a third option, planners can use decentralization to increase the responsiveness of organizations to uncertain environments and to innovation. Decentralization allows organizations to obtain and use information quickly and effectively. The distribution of power and authority within the organization is changed significantly when responsibilities for planning, management, and resource generation are deconcentrated or delegated (Rondinelli and Nellis, 1986).

Administrative decentralization requires significant changes in management processes. In their assessment of decentralization in developing countries, Rondinelli, Nellis, and Cheema (1984) found that when decentralization itself is an innovation, it must be introduced into organizations slowly and incrementally, allowing them time to adjust and providing them with the resources to manage tasks in new ways. They found that small-scale decentralization programs designed for limited impact can generate more positive and durable results than large-scale sweeping organizational reforms. Decentralized programs should, therefore, be planned on a small scale and expanded incrementally. The introduction of abstract or complex procedures for decentralized planning and management are unlikely to be implemented effectively in most developing countries. Therefore, decentralized programs should be kept simple, flexible, and appropriate to the capacities of the organizations or units to which responsibility is being transferred. They also found that decentralization often requires a lengthy period of gestation before its benefits will be realized. In the early stages planners and managers must expect some confusion, uncertainty, lack of confidence, or hesitation to take the initiative on the part of the officials to whom new responsibilities are transferred.

Decentralization is more likely to be successful if programs are carefully supervised and administrators make an effort to teach lower-level officials and organizations how to handle new responsibilities. Projects that transfer large numbers of tasks or greater responsibility all at once without sufficient technical assistance are likely to fail. Plans for decentralization should include training for both central administrators and lower-level implementors. In a decentralized organizational structure the

role of high-level administrators is to provide guidance and assistance rather than to exercise stringent controls. Technical and managerial training must be provided not only for those to whom responsibility is being transferred, but also to central officials who will have to learn how to support local implementors more effectively.

Finally, plans for decentralization must consider transferring adequate financial resources as well as authority to those who will be given greater responsibilities. Unless local administrators and teachers receive adequate financial resources—or the authority to use locally generated resources—they will perceive decentralization as meaningless or risky.

Changing Management Strategy. Changes in management strategy are the sum of changes in processes, values, and structures. However, planners must describe both the intended strategy and the changes required from current strategy in order to establish the goals and rationale for organizational change.

Changing Project Design

A second alternative for achieving higher levels of compatibility between management requirements and management capacity is to change the design of a project so that existing organizations have a better chance of implementing it successfully. This can be done primarily by modifying levels of innovation in the project or by shifting responsibility for implementation to an organization that already has the capacity to implement it successfully.

Modifying Levels of Innovation

When organizational changes do not appear feasible or adequate to develop management capacity sufficiently to carry out a proposed project, planners must consider modifying the level of innovation in project tasks.

As we pointed out in chapter 4, the level of innovation is determined by two characteristics of tasks. One is *predictability*, determined by the extent to which tasks are analyzable and by the degree of task variety required by the innovation. The second is *demandingness*, determined by the geographic or institutional scale of implementation and by the degree of deviation from current practice required by new tasks. Planners can change the level of innovation in tasks by changing the characteristics of the work to be accomplished. As table 8.4 shows, planners can make tasks more predictable by using known and tested interventions, reducing the number of iterative tasks, and reducing the number of innovative elements. They can make projects less demanding by introducing innova-

Table 8.4 Modifying the Innovativeness of Projects and Tasks

Elements of innovation		Types of changes
Predictability	Analyzability	–Use known and tested intervention models
		–Reduce proportion of iterative tasks; increase linear tasks
	Variety	–Reduce number of innovative elements
Demandingness	Deviation	–Break up innovation into discrete tasks or phases to permit incremental changes in job behaviors
	Scale	–Reduce geographic spread
		–Reduce number of institutions involved

tions in phases, reducing the geographic scope of innovations, or reducing the number of institutions that will carry out the innovations at the same time.

When problems are ambiguous, conditions are uncertain and outcomes are risky, projects can be designed as a sequential series of tasks to facilitate learning and to generate experience through experiments and testing (Rondinelli, 1983). Innovative education programs could be designed as a series of projects or as a project with four phases:

The *experimental phase* is needed when little is known about the nature and characteristics of the problem to be addressed or about the most effective means of setting objectives or selecting tasks. Experimental phases would test alternative methods of analysis, different types of technology or technological packages, ascertain the acceptability of alternatives to different groups of beneficiaries, and draw conclusions about which interventions are most promising.

A *pilot phase* would then test the experiments under a wider variety of specific conditions or adapt and refine methods, techniques, and interventions that have proven to be effective in other countries or regions to local conditions and needs.

A *demonstration phase* would follow the pilot phase to show the effectiveness of tested interventions, to increase or mobilize demand for new

methods and approaches, and to increase the acceptability of new methods, techniques, or forms of social interaction on a broader scale.

The *replication, adoption, or production phase* would be undertaken only when many of the unknowns or uncertainties are resolved. Even in this phase, however, many education projects are somewhat experimental; seemingly routine replications often meet unanticipated difficulties when projects are transferred from one cultural setting to another.

The pace at which projects can go through this incremental process, and the degree to which each stage must be a discrete set of activities, depends largely on the complexity and innovativeness of the tasks and on the degree of uncertainty in the project's environment. The design of highly innovative and complex projects must often evolve slowly through each stage as a distinct but related set of activities. Relatively simple and routine projects may proceed quickly through these stages with experimentation and testing focused on a few aspects about which understanding is weakest. Higher levels of environmental uncertainty tend to reduce the pace of implementation for all levels of innovation.

Of course, there are some real dangers to relying heavily on the results of pilot projects to bring about widespread change in educational practices in developing countries. One is that pilot projects funded heavily by the national government or by international organizations may receive so much investment and technical assistance that they cannot be replicated widely throughout the country without similar levels of funding. They may have been successful precisely because they had access to a multitude of resources, which are not available later or in all places throughout the country or for a large number of replications. In their study of education projects funded by the United Nations, Havelock and Huberman (1977: 284) discovered another common problem. "When they have succeeded in one site, impatience to solve national problems takes on new force. Thus, there is the risk of rushing feverishly into widespread application without prior planning or negotiation. Criteria for extension become exclusively administrative since these are the easiest criteria to implement through the existing infrastructure." A third, related problem is that application may be rushed before there is sufficient evidence to determine whether or not the results of the pilot project can be achieved under varying conditions or circumstances or if the results can be attained when some of the crucial inputs are not available. These problems can all be exacerbated if international organizations provide assistance only for the pilot project and not for demonstration, replication, and adoption phases.

Generally, however, increasing analyzability and reducing variety and deviation have the effect of simplifying innovations. Accomplishing all three makes the objectives and tasks of the project increasingly routine. Reducing scale has the effect of making an innovation more manageable.

Changing the Implementing Organization

When contingency analysis indicates that the intended implementing agency simply cannot adapt to the management strategy required by the project, planners can modify the project's design by choosing a different implementing agency. In such circumstances project planners may reassign the project to an organization with the appropriate values, structures, and management processes.

Changing the implementing organization is usually extremely difficult, however, and if contingency analysis leads planners to the conclusion that such a change is necessary, they are more likely to modify the project design and lower the levels of innovation in order to change management requirements. When neither adjustment is possible, the viability of the project must be questioned.

Approaches to Organizational Change and Project Redesign

We have argued throughout this book that if education reforms are to be implemented successfully, planners must adjust their design to achieve compatibility with the degree of innovation and the degree of environmental uncertainty, the values of implementors and beneficiaries, and the management capacity of implementing organizations. Planners must consider the same variables in formulating action plans for introducing changes in organizations that will carry out innovative projects. Figure 8.1 describes four approaches to introducing organization development interventions in implementing agencies. These four approaches correspond to the four management strategies for education reform.

Comprehensive Change

Comprehensive change may be needed when the environment is highly uncertain and when the education reforms are highly innovative. The objective of comprehensive change is to increase the management capacity of an implementing organization to use an adaptive management strategy.

Comprehensive change is a high-risk plan of action in many developing countries. Experience indicates that this approach is always difficult to implement. Comprehensive education reform projects have taken place in many developing countries following independence from colonial rule. National leaders, as a symbol of political independence, have attempted to create a new education system quickly to replace the colonial system (Havelock and Huberman, 1977). Usually these were highly innovative programs that required new technologies and curricula that were undertaken on a large scale in countries with political and economic environ-

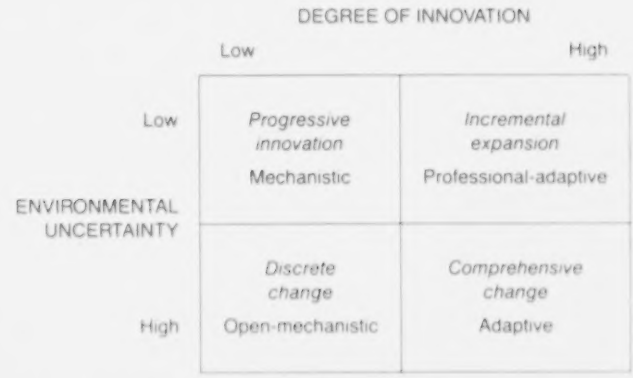


Figure 8.1 Alternative Approaches to Change and Associated Management Strategies

ments that were still somewhat unstable. Few of the comprehensive education reform projects succeeded, primarily because of the failure to develop the capacity of ministries of education to carry them out. Havelock and Huberman (1977) identify a number of implementation problems that these programs encountered. They included insufficient funds, facilities, and trained personnel; resistance and opposition from teachers and school administrators who are the product of the traditional system; lack of requisite knowledge or skills to operate in the new system; difficulty in supervising and institutionalizing changes throughout the country; and rapid turnover in personnel at all levels. Often the grand reforms disappeared quickly if the political leaders who initiated them lost interest or were replaced. Many times there was a gradual reversion to traditional methods and practices in education ministries after the initial momentum for reform began to slow down.

Although the efficacy of the innovations called for in a project may be proven, environmental uncertainty often prevents the implementing agency from mobilizing the political and financial support necessary to institutionalize the internal changes needed to carry them out.

Experience suggests it is very difficult to bring about comprehensive changes in organizations. Comprehensive change is an approach from which project designers may seek to retreat through modifications in the project's level of innovation.

Incremental Expansion of Management Capacity

The incremental expansion of management capacity in implementing agencies may be a more appropriate approach when the environment is stable and when the level of innovation is moderate or high. This ap-

proach attempts to increase the capacity of the implementing agency to use professional-adaptive management strategies. Organization development must be introduced prior to and during project implementation.

In order to attain greater compatibility between the management requirements of an innovative project and the management capacity of the implementing organization, the level of innovation in the project is modified by reducing the scale of the effort or restricting the innovation to a limited area or to a limited number of institutions. Small-scale changes leave room for institutional development. They increase the time available for the implementing agency to expand its management capacity to introduce the innovations on a larger scale and to learn more about the efficacy of the changes they are introducing. An incremental approach also allows the implementing agency to learn how to use professional-adaptive management strategies more effectively. It allows the organization to develop gradually a cadre of experienced and trained professionals and managers who can expand the scope of innovation and train others to use professional-adaptive management strategies.

Experience with an incremental approach to organizational change—whether it was deliberately planned that way or evolved from necessity—indicates that it gives an organization the time needed to learn by doing. One of the major problems that Mexico's Council for the Promotion of Education faced when it attempted to extend education to remote rural areas during the 1970s, for example, was that there was little knowledge about how to do it and little experience with rural schooling in the Ministry of Education. Paul (1982: 94) reports that "no one in CONAFE had any clear idea as to the interventions which were likely to succeed in rural communities." Therefore, CONAFE had to learn how to extend education to rural areas effectively through a series of experimental projects to test different approaches in different areas of the country. The entire operation evolved through experimentation, adaptation, testing, and learning until the most effective means had been demonstrated:

> The nature of the experimental project changed considerably as it evolved. Initially, young instructors were assigned to teach in the communities in which they grew up. Soon this was found to be unsuitable and therefore certain modifications were introduced. Community responses seemed to be better when instructors came from other places. But in all cases, instructors had a rural background and were familiar with the local customs and mores. Transactions with the community were conducted informally to begin with. As experience accumulated, communities were encouraged to elect small committees which negotiated with the instructor and CONAFE on the terms and arrangements for setting up the school.

Even after a basic education program evolved that met rural people's needs and prepared rural children for mainstream higher education, local instructors were given "considerable flexibility to use local materials and examples to make the curriculum more relevant to specific situations."

The reforms that were introduced in Costa Rica at the beginning of the 1980s to regionalize the national education system were also implemented incrementally. As we noted earlier, the Minister of Education appointed a broad-based team of educators, political representatives, university professors, and education administrators from both inside and outside of the Ministry of Public Education, complemented by thirty-two study groups composed of educators and private citizens, to make recommendations concerning the regionalization of educational administration in the country. Rojas (1984: 148–149) notes the philosophy behind the reform process: "Instead of speaking of 'reform,' the team believed that what should be stressed and attempted should be changes in the evolutionary sense and that the idea of 'process' was key. . . . The idea was not to break with the past and start something new but to build upon the best of the past."

Clearly, not all groups involved in education reform are comfortable with the ambiguity of an incremental approach. Many professionals in the Ministry of Public Education were either suspicious of such an approach or disdainful of it, feeling that only technical experts knew the most effective ways of organizing the education system and that they alone should design the reforms. Many officials of the teachers unions were also uncomfortable with an incremental approach to change. Rojas (1984: 149) observed that "this was an idea that although accepted theoretically, was hard to live with, especially on the part of the teachers' unions who wanted to see finished products of what was to be done ahead of time so that they could decide whether to support or oppose the changes." Although the unions were invited to join all of the committees, some did not "so that, as a union leader said, 'they could be free to criticize later.'"

Discrete Change

When political and economic turbulence in the environment is high, but the education reforms require only moderate or low levels of innovation, management capacity can be expanded through discrete changes. New but relatively routine changes can be introduced in a limited number of institutions. This permits managers to use an open-mechanistic strategy, monitoring the environment closely and adjusting the project incrementally as conditions change. Planners may modify a proposed project by increasing the analyzability of tasks and by reducing variety, deviation, and scale. Experience with a series of discrete changes in Haiti shows that it was the only feasible way of bringing about education reform in that

country during a period of political and social transition (Middleton, 1986). The need for significant expansion and improvement of education became widely recognized in Haiti during the early 1970s. In collaboration with the World Bank the government embarked on a twenty-year program of education reform that has been supported by four bank-assisted projects. On the whole, the program was relatively successful because it was implemented at pace with a series of discrete changes in the planning and management capacity of the implementing agency. The first ten years of effort, beginning in 1972, were devoted to establishing the basis for reform. Educational policies and plans were formulated after studies of educational problems and assessments of needs were completed. New curricula were developed and tested on a pilot basis. Teachers were involved in the classroom testing of prototype curricula. The geographic coverage of the innovations was extended gradually, and the supervision and inspection system was strengthened to monitor the effectiveness of the changes. Throughout the project the government's support remained strong, and it was willing to adapt both the strategy and tactics to lessons learned during earlier phases of implementation. The government was careful to advance only as quickly as the management capacity of the implementing organizations expanded and as public support grew. When opposition emerged to some elements of the reform, such as adopting Creole as the language of instruction, the government slowed down the project's implementation until it could demonstrate success and mobilize demand.

The World Bank had a similar experience with the largely successful implementation of four related education reform projects that were undertaken in Ethiopia over a twenty-year period (Middleton, 1986). During this period a variety of management problems were encountered, but by the fourth project an exceptionally strong management capability had been developed. The implementing organization brought the project in on time and under budget despite significant revisions that expanded the scope of the program beyond what had been planned originally. Much of the success was due to the fact that the bank and the government allowed the projects to expand in scope and complexity only as management capacity grew. As management capacity expanded, the government successfully renegotiated major components of the projects with the bank. This included the gradual replacement of expatriate technical advisers with local experts. As a result, the fourth project was prepared entirely by the government. The government also demonstrated a willingness to learn from experience and to make whatever management changes were needed.

A plan of discrete change, however, may be the best that can be

accomplished under conditions of high uncertainty. Of course, it risks the possibility that successful innovations will not spread throughout the education system.

Progressive Innovation

Progressive innovation may be the only way of improving management capacity in a bureaucracy using mechanistic management strategies when environmental uncertainty is low and the education reforms consist mostly of routine but large-scale tasks. Under conditons that do not allow changes that will move an organization toward using an open-mechanistic or professional-adaptive management strategy and that offer little opportunity for experimentation and learning, the best that can be done is to improve the efficiency and effectiveness with which the organization carries out routine tasks and its capacity to operate on a wider scale. Even under these conditions, however, implementation requirements are high because of the geographic and institutional scale of the project.

Although the level of innovation is moderately high because of the scale of innovation, planners can make management requirements and management capacity more compatible by reducing the other three components of innovation. In early phases of implementation planners can increase the analyzability of tasks and reduce their variety and deviation from current practices and procedures. Breaking the innovation into a sequence of small changes that are introduced slowly but progressively can increase the ability of an organization using a mechanistic management strategy to manage them successfully. The behavior changes required of managers and employees must be relatively small, allowing long periods of time to learn new tasks and skills and to modify management processes. As implementation proceeds, and experience accumulates, the degree of innovation can be progressively increased.

Progressive innovation in the management capacity of bureaucracies can lead to small but widespread changes in education systems. However, this approach requires long periods of time to fully implement changes. Limiting the initial degree of innovation provides time to improve management capacity to deliver services more effectively and efficiently. Table 8.5 summarizes the relationships among the four approaches to organizational change and modification in project design.

Matching Level of Innovation with Management Capacity

When analysis indicates that the management requirements of a proposed project exceed the management capacity of the implementing organization, project planners must consider the option of modifying innovation to improve implementation. Planners must choose a level of

Table 8.5 Approaches to Implementation Planning

	Approach to planning			
	Progressive innovation	Incremental expansion	Discrete change	Comprehensive change
Environmental uncertainty	Low	Low	High	High
Innovation →	*Low*	*High*	*Moderate*	*High*
Analyzability	High	Low	Moderate	Low
Variety	Low	High	Moderate	High
Deviation	Low	High	Moderate	High
Scale	High	Low	Low	High
Existing management strategy	Mechanistic	Mechanistic or professional-adaptive	Mechanistic or open-mechanistic	Open-mechanistic or adaptive
Management strategy required	Professional-adaptive	Professional-adaptive	Open-mechanistic	Adaptive

innovation that is compatible with the management strategy of the implementing organization. Planners must adjust the level of innovation in project tasks to the level of management capacity in the implementing organization.

The Choices with Given Levels of Uncertainty

If the level of environmental uncertainty is taken as fixed in the analysis, movement can only occur between incremental expansion and progressive innovation or between comprehensive change and discrete change as levels of innovation are modified (as shown in figure 8.2). These limits establish the range of options available for redesigning the project to make it less innovative.

Moving from incremental expansion to progressive innovation requires reducing the level of project innovation by increasing the analyzability of tasks and reducing their variety and deviation from existing practices. At the same time, the scale of the innovation can be increased where strong and effective mechanistic management strategies are in place. This shift changes the required management strategy from professional-adaptive to mechanistic.

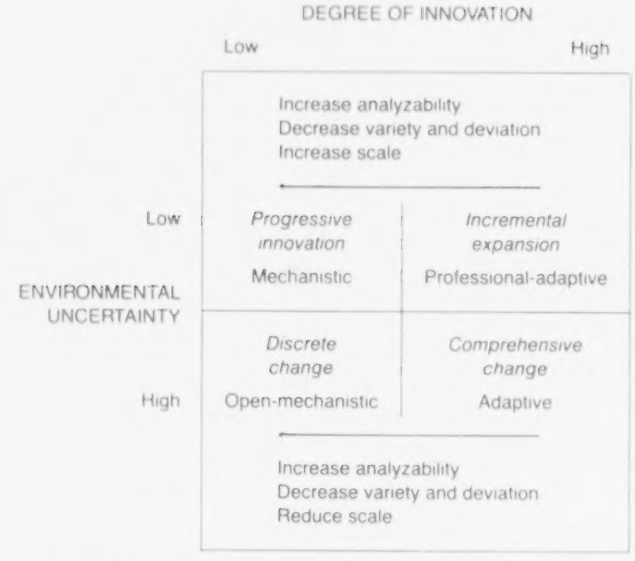


Figure 8.2 Modifying Innovation under Fixed Levels of Uncertainty

Moving from comprehensive change to discrete change requires reducing innovativeness by increasing analyzability, decreasing variety and deviation, and reducing scale. The required management strategy changes from adaptive to open-mechanistic.

Figure 8.2 also illustrates the limits on modifying project innovation or changing management capacity. When environmental uncertainty is low, a project requiring incremental change is feasible if the implementing organization has the potential to use a professional-adaptive management strategy. When environmental uncertainty is high, a project with high levels of innovation demands adaptive management. Introducing adaptive management is difficult under most circumstances and should be attempted only when implementing organizations have established effective open-mechanistic management and shown the potential to develop adaptive characteristics.

The Choices with Changing Levels of Uncertainty

The effect of holding constant the level of environmental uncertainty is to restrict planners to one dimension in redesigning a project. For example, the intuitively attractive options of moving from adaptive to professional-adaptive, or open-mechanistic to mechanistic strategies, are not possible conceptually.

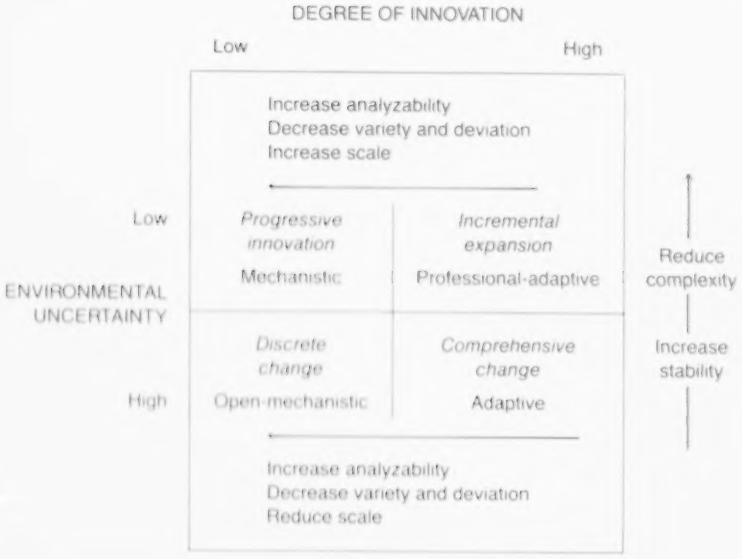


Figure 8.3 Modifying Innovation under Changing Levels of Uncertainty

However, the level of uncertainty can be decreased by reducing complexity and increasing stability within the environment, as shown in Figure 8.3. Planners can achieve this by changing education policy, programs, or levels of funding, by mobilizing support from interest groups, and by reducing to a minimum the number of institutions involved in implementation.

If uncertainty can be modified, a highly innovative project can be implemented through incremental changes in an organization that allows it to adopt a professional-adaptive management strategy. Planners modify the level of innovation in the project by reducing the scale of the effort, which can contribute to simplifying the organizational environment. The innovation is carried out as a pilot project. This strategy is viable if the existing organization shows potential for an adaptive-professional management strategy. Similarly, decreasing environmental uncertainty permits an organization using a mechanistic or open-mechanistic management strategy to carry out a project with moderately high levels of innovation.

Figure 8.3 shows that if planners want to modify the level of innovation in a project to fit existing management strategies, both the level of environmental uncertainty and the level of innovation must be changed.

Summary

Modifying innovation and strengthening management capacities through organizational change are iterative processes. The two processes are carried out together, with much looping back from one to the other until management requirements and management capacity are made more compatible. Planners must expect to make trade-offs between innovation and organization development.

By recognizing the great variety of environments in which education reform projects are implemented, implications of different levels of innovation, and the legitimacy of different management strategies, planners can use contingency analysis to assess the complexity and uncertainty of conditions under which education reform programs will have to be implemented. If planners in international assistance agencies and educational institutions are willing to invest the necessary time and resources, contingency analysis offers a framework that can help policy-makers to understand and respond more effectively to the management implications of education reform projects.

REFERENCE LIST

Adams, Milton N., and Susan E. Kruppenbach. 1987. "Gender and Access in the African School." *International Review of Education* 33, no. 4: 437–454.

Adams, R. S., and D. Chen. 1981. *The Process of Educational Innovation: An International Perspective*. London: Kogan Page.

Ansoff, H. Igor. 1965. *Corporate Strategy*. New York: McGraw-Hill.

Auerhan, J., S. Ramakrishnan, R. Romain, G. Stoikov, L. Tiburcio, and P. Torres. 1985. *Institutional Development in Education and Training in Sub-Saharan African Countries*. Education and Training Series Discussion Paper no. EDT22. Washington, D.C.: World Bank.

Baum, Warren, C., and Stokes M. Tolbert. 1985. *Investing in Development: Lessons of World Bank Experience*. New York: Oxford University Press.

Beal, George, and Victor T. Valvajena. 1985. "Interorganizational Coordination," in J. Middleton and D. J. Wedemeyer, eds., *Methods of Communication Planning*. Paris: UNESCO. Pp. 341–367.

Bedeian, Arthur G. 1984. *Organizations: Theory and Analysis*. New York: Holt, Rinehart, and Winston.

Beeby, C. E. 1986. "The Stages of Growth in Educational Systems," in S. Heyneman and D. White, eds., *The Quality of Education and Economic Development*. Washington, D.C.: World Bank. Pp. 37–44.

Benveniste, Guy. 1987. *Professionalizing the Organization: Reducing Bureaucracy to Enhance Effectiveness*. San Francisco: Jossey-Bass.

Berman, P., and M. S. McLaughlin. 1978. "Federal Programs Supporting Educational Change," *Implementing and Sustaining Innovations*, vol. 8, Rand Report no. R-1589/8-HEW. Santa Monica, Calif.: Rand Corporation.

Bray, Mark. 1981. "Policies and Progress towards Universal Primary Education," *The Journal of Modern African Studies* 19, no. 4: 547–563.

Brinkerhoff, Derick W., and Rudi Klauss. 1985. "Managerial Roles for Social Development Management," *Public Administration and Development* 5, no. 2: 145–156.

Burke, W. W. 1982. *Organization Development: Principles and Practices*. Boston: Little, Brown.

Burns, T., and G. Stalker. 1961. *The Management of Innovation*. London: Tavistock.

Cohen, J. M., M. S. Grindle, and S. T. Walker. 1985. "Foreign Aid and Conditions Precedent: Political and Bureaucratic Dimensions," *World Development* 13, no. 12: 1211–1230.

Cohn, Elchanan, and Richard A. Rossmiller. 1987. "Research on Effective Schools: Implications for Less Developed Countries," *Comparative Education Review* 31, no. 3: 377–399.

Coombs, Philip H. 1985. *The World Crisis in Education: A View from the Eighties*. New York: Oxford University Press.

Coombs, Philip H., with Manzoor Ahmed. 1974. *Attacking Rural Poverty: How Nonformal Education Can Help*. Baltimore, Md.: Johns Hopkins University Press.

Costa Rica, Government of. 1979. *Problemas y Recomendaciones en Relacion Con el Sistema Educativo Costarricense—Sintesis de los Informes de los Comissiones Technicas y Consultivas*.

Cowen, Robert, and Martin McLean. 1984. *International Handbook of Education Systems*. Vol. 3: *Asia, Australia, and Latin America*. Chichester, England: Wiley.

Crandall, D. P., and associates. 1983. *People, Policies and Practices: Examining the Chain of School Improvement*. Andover, Md.: Network.

Downs, Anthony. 1967. *Inside Bureaucracy*. Boston: Little, Brown.

Drucker, Peter F. 1964. *Managing for Results*. New York: Harper and Row.

Edmonds, R. R. 1982. "Programs of School Improvement: An Overview." *Educational Leadership* 40: 4–11.

Elmore, R. F., and M. W. McLaughlin. 1982. "Strategic Choice in Federal Education Policy: The Compliance-Assistance Tradeoff." In A. Liebermann and M. W. McLaughlin, eds., *Policy Making in Education*. 81st NSSE Yearbook. Chicago: University of Chicago Press.

Esman, Milton J. 1967. "The Institution Building Concepts—An Interim Appraisal." Pittsburgh: University of Pittsburgh Graduate School of Public and International Affairs. Mimeographed.

Esman, Milton J. 1980. "Development Assistance in Public Administration: Requiem or Renewal." *Public Administration Review* 40, no. 5: 426–431.

Esman, Milton J., and John D. Montgomery. 1969. "Systems Approaches to Technical Cooperation: The Role of Development Administration." *Public Administration Review* 29, no. 5: 507–538.

Fiala, Robert, and Audri Gordon Lanford. 1987. "Educational Ideology and the World Education Revolution, 1950–1970." *Comparative Education Review* 31, no. 3 (August): 315–332.

French, J. R., and B. H. Raven. 1959. "The Bases of Social Power." In D. Cartwright, ed., *Studies in Social Power*. Ann Arbor: University of Michigan, Institute of Social Research. Pp. 150–167.

French, W. L., H. Bell, Jr., and R. A. Zawacki, eds. 1983. *Organization Development: Theory, Practice, and Research*. Rev. ed. Plano, Tex.: Business Publications.

Friedmann, John R. 1973. *Retracking America: A Theory of Transactive Planning*. New York: Anchor Press.

Fullan, M. 1982. *The Meaning of Educational Change*. New York: Columbia University Teachers College Press.

Fuller, Bruce. 1986. *Raising School Quality in Developing Countries: What Investments Boost Learning?* World Bank Discussion Papers no. 2. Washington, D.C.: World Bank.

Fuller, B., K. Gorman, and J. Edwards. 1986. "School Quality and Economic Growth in Mexico." In S. Heyneman and D. White, eds., *The Quality of*

Education and Economic Development. Washington, D.C.: World Bank. Pp. 17–33.

Gibson, C. F. 1980. *Managing Organizational Behavior*. Homewood, Ill.: Richard D. Irwin.

Gibson, J., J. Ivancevich, and J. Donnelly. 1973. *Organizations: Structures, Process and Behavior*. Dallas: Business Publications.

Gold, Kenneth A. 1982. "Managing for Success: A Comparison of Private and Public Sectors." *Public Administration Review* 42, no. 6 (November–December): 568–575.

Goldstein, Howard. 1984. *Social Learning and Change*. New York: Tavistock.

Gran, Guy. 1983. "Learning from Development Success: Some Lessons from Contemporary Case Histories." Working Paper no. 9. Washington, D.C.: National Association of Schools of Public Affairs and Administration.

Gross, Bertram M. 1968. *Organizations and Their Managing*. New York: Free Press.

Haddad, Wadi D., Susan Coronis, and Terry Demsky. 1986. *Education Policy Analysis: The Jordan Case*. Washington, D.C.: Trans-Development Corporation.

Haddad, W. D., L. W. Goodman, and K. S. Gorman. 1986. *Education Policy Analysis: The Peru Case*. Washington, D.C.: Trans-Development Corporation.

Haddad, Wadi D., and Terry Demsky. 1987. *Education Policy Analysis: The Thailand Case*. Washington, D.C.: Trans-Development Corporation.

Hage, Jerald, and Kurt Finsterbusch. 1987. *Organizational Change as a Development Strategy*. Boulder, Colo.: Lynne Rienner Publishers.

Hannah, John P., with G. Honadle, T. Walker, and A. Barclay, Jr. 1984. *Sustaining Rural Development: A Guide for Project Planners, Managers, Evaluators and Trainers*. Washington, D.C.: Development Alternatives Incorporated.

Hanson, E. Mark. 1986. *Educational Reforms and Administrative Development: The Cases of Colombia and Venezuela*. Stanford, Calif.: Hoover Institution Press.

Harbison, Frederick H. 1973. *Human Resources as the Wealth of Nations*. New York: Oxford University Press.

Havelock, R. G., and A. M. Huberman. 1977. *Solving Educational Problems: The Theory and Reality of Innovation in Developing Countries*. Paris: UNESCO.

Heaver, Richard, and Arturo Israel. 1986. *Country Commitment to Development Projects*. World Bank Discussion Papers no. 4. Washington, D.C.: World Bank.

Hellriegel, D., and J. W. Slocum, Jr. 1982. *Management*. 3d ed. Reading, Mass.: Addison Wesley.

Herzberg, Frederick. 1966. *Work and the Nature of Man*. New York: World Publishing.

———. 1968. "One More Time: How Do You Motivate Employees?" *Harvard Business Review* 46, no. 1: 53–62.

Heyneman, S. P., D. T. Jamison, and X. Montenegro. 1984. "Text Books in the

Philippines: Evaluation of the Pedagogical Impact of a Nationwide Investment," *Evaluation and Policy Analysis* 6, no. 2: 139–150.

Heyneman, Stephen P., and Daphne S. White, eds. 1986. *The Quality of Education and Economic Development*. Washington, D.C.: World Bank.

Hirschman, Albert O. 1967. *Development Projects Observed*. Washington, D.C.: Brookings Institution.

Hofstede, Geert. 1980. "Motivation, Leaders, and Organization: Do American Theories Apply Abroad?" *Organizational Dynamics* (Summer): 42–62.

House, Ernest. 1981. "Three Perspectives on Innovation," in R. Lehming and M. Kane, eds., *Improving Schools*. Beverly Hills, Calif.: Sage Publications.

Hugkuntod, Ubon, and Walter E. J. Tips. 1987. "Planning and Implementation of Nonformal Education Projects in Rural Thailand," *International Review of Education* 33, no. 1: 51–74.

Ickis, John C. 1981. "Structural Responses to New Rural Development Strategies," in D. Korten and F. Alfonso, eds., *Bureaucracy and the Poor: Closing the Gap*. Singapore: McGraw-Hill. Pp. 4–32.

Jamison, Dean T., Barbara Searle, Klaus Galda, and Stephen P. Heyneman. 1981. "Improving Elementary Mathematics Education in Nicaragua," *Journal of Educational Psychology* 73, no. 4 (August): 556–567.

Johnston, B., and W. Clark. 1982. *Redesigning Rural Development: A Strategic Perspective*. Baltimore, Md.: Johns Hopkins University Press.

Kelman, Herbert C., and Donald P. Warwick. 1980. "The Ethics of Social Intervention: Goals, Means and Consequences," in B. H. Raven, ed., *Policy Studies Review Annual*, 1980, vol. 4. Beverly Hills, Calif.: Sage Publications. Pp. 43–73.

Kingdon, John W. 1984. *Agenda, Alternatives and Public Policies*. Boston: Little, Brown.

Klauss, Rudi. 1979. "Interorganizational Relationships for Project Implementation," in G. Honadle and R. Klauss, eds., *International Development Administration*. New York: Praeger. Pp. 146–167.

Korten, David C. 1980. "Community Organization and Rural Development: A Learning Process Approach," *Public Administration Review* 40, no. 5: 480–511.

———. 1981. "The Management of Institutions in Transition," in D. Korten and F. Alfonso, eds., *Bureaucracy and the Poor: Closing the Gap*. Singapore: McGraw-Hill. Pp. 221–237.

———. 1984. "Strategic Organization for People Centered Development," *Public Administration Review* 44, no. 4 (July–August): 341–352.

Korten, Frances F. 1981. "Community Participation: A Management Perspective on Obstacles and Options," in D. Korten and F. Alfonso, eds., *Bureaucracy and the Poor: Closing the Gap*. Singapore: McGraw-Hill. Pp. 181–200.

Lawler, E. E., III. 1977. "Reward Systems," in J. R. Hackman and J. L. Suttle, eds., *Improving Life at Work*. Santa Monica, Calif.: Goodyear Publishing. Pp. 163–226.

Lawrence, P. R., and J. W. Lorsch. 1967. *Organization and Environment: Man-*

aging Differentiation and Integration. Boston: Harvard Business School Division of Research.

———. 1969. *Developing Organizations: Diagnosis and Action*. Reading, Mass.: Addison-Wesley.

Likert, Rensis. 1967. *The Human Organization*. New York: McGraw-Hill.

Lindblom, C. E. 1975. "The Sociology of Planning: Thought and Social Interaction," in M. Bornstein, ed., *Planning: East and West*. Cambridge, Mass.: Ballinger. Pp. 23–60.

Lippitt, Gordon L., Petter Langseth, and Jack Messop. 1985. *Implementing Organizational Change*. San Francisco: Jossey-Bass Publishers.

Lloyd, Iris. 1978. "Don't Define the Problem," *Public Administration Review* 38, no. 3 (May–June): 283–286.

Majone, G., and A. Wildavsky. 1978. "Implementation as Evolution," in H. Freedman, ed., *Policy Studies Review Annual*. Beverly Hills, Calif.: Sage Publications. Pp. 103–117.

March, James G., and Herbert A. Simon. 1958. *Organizations*. New York: Wiley.

McGinn, Noel, and Susan Street. 1982. "The Political Rationality of Resource Allocation in Mexican Public Education," *Comparative Education Review* 26, no. 2: 178–198.

Method, Frank, Ray San Giovanni, and Luis Solis. 1985. *Costa Rica Education and Human Resources Development: Preliminary Analysis and Program Recommendations for USAID*. San Jose, Costa Rica: U.S. Agency for International Development.

Middleton, John. 1985a. "A Conceptual Framework for Communication Planning," in J. Middleton and D. J. Wedemeyer, eds., *Methods of Communication Planning*. Paris: UNESCO. Pp. 37–76.

———. 1985b. "The Philippine Radio Education Project: A Case Study of Decision, Design and Interactions," in B. Searle, ed., *Evaluation in World Bank Education Projects: Lessons From Three Case Studies*. Discussion Paper no. EDT5. Washington, D.C.: Education and Training Department, World Bank.

Middleton, John, with Habtesalassie Woldemariam and Carolyn Mayo-Brown. 1986. *Management in World Bank Education Projects: Analysis of Experience*. Discussion paper no. EDT42. Washington, D.C.: Education and Training Department, World Bank.

Miles, M. B. 1984. "On Temporary Systems," in M. B. Miles, ed., *Innovation in Education*. New York: Columbia University Teachers College Press.

Mintzburg, H. 1979. *The Structure of Organizations*. Englewood Cliffs, N.J.: Prentice-Hall.

———. 1980. *The Nature of Managerial Work*. 2d ed. New York: Harper and Row.

Moris, Jon R. 1981. *Managing Induced Rural Development*. Bloomington, Ind.: Indiana University Institute for International Development.

Muller, L., and A. Israel. 1983. "Institutional Development Technical Note No. 1: The Institutional Impact of Project Units." Washington, D.C.: World Bank.

Nadler, D. A. 1977. *Feedback and Organization Development Using Data-Based Methods*. Reading, Mass.: Addison-Wesley.

Nadler, D.A., and M. Tushman. 1983. "A General Diagnostic Model for Organizational Behavior: Applying a Congruence Perspective," in J. R. Hackman, E. E. Lawler, and L. W. Porter, eds. *Perspectives in Behavior in Organizations*. New York: McGraw-Hill. Pp. 112–124.

Noor, Abdun. 1981. "Education and Basic Human Needs." World Bank Staff Working Paper No. 450. Washington, D.C.: World Bank.

Nutt, Paul C., and Robert W. Backoff. 1987. "A Strategic Management Process for Public and Third Sector Organizations," *Journal of the American Planning Association* 55, no. 1: 44–57.

Paul, Samuel. 1982. *Managing Development Programs: The Lessons of Success*. Boulder, Colo.: Westview Press.

Peabody, Robert L. 1964. *Organizational Authority*. New York: Atherton.

Peters, Thomas J., and Robert H. Waterman, Jr. 1982. *In Search of Excellence: Lessons from America's Best Run Companies*. New York: Harper and Row.

Pfeffer, Jeffrey. 1978. *Organizational Design*. Arlington Heights, Ill.: AHM Publishing.

Plank, David N. 1987. "The Expansion of Education: A Brazilian Case Study," *Comparative Education Review* 31, no. 3 (August): 361–376.

Purkey, S. C., and M. S. Smith. 1983. "Effective Schools—A Review," *Elementary School Journal* 83: 427–452.

Rickards, Tudor. 1974. *Problem Solving through Creative Analysis*. New York: Wiley.

Rojas, Yolanda. 1984. "The Politics of Educational Reform in Costa Rica: A Case Study." Ph.D. dissertation, University of Wisconsin—Madison.

Rondinelli, Dennis A. 1976. "Public Planning and Political Strategy," *Long Range Planning* 9, no. 2: 75–82.

———. 1982. "The Dilemma of Development Administration: Uncertainty and Complexity in Control-Oriented Bureaucracies," *World Politics* 35, no. 1: 43–72.

———. 1983a. *Development Projects as Policy Experiments: An Adaptive Approach to Development Administration*. New York: Methuen.

———. 1983b. "Projects as Instruments of Development Administration: A Qualified Defense and Suggestions for Improvement," *Public Administration and Development* 3: 307–327.

———. 1985. "Development Administration and American Foreign Assistance Policy," *Canadian Journal of Development Studies* 6, no. 2: 211–239.

———. 1986. *Practical Lessons for Development Management: Experience with Implementing Agricultural Development Projects in Africa*. AID Evaluation Study no. 39. Washington, D.C.: U.S. Agency for International Development.

———. 1987. *Development Administration and U.S. Foreign Aid Policy*. Boulder, Colo.: Lynne Rienner Publishers.

Rondinelli, Dennis A., John R. Nellis, and G. Shabbir Cheema. 1984. *Decentralization in Developing Countries: A Review of Recent Experience*. World Bank Staff Working Paper no. 581. Washington, D.C.: World Bank.

Rondinelli, Dennis A., and John R. Nellis. 1986. "Assessing Decentralization Policies in Developing Countries: The Case for Cautious Optimism," *Development Policy Review* 4: 3–23.

Rondinelli, Dennis A., and Patricia A. Wilson. 1987. "Linking Decentralization and Regional Development Planning: The IRD Project in Peru," *Journal of the American Planning Association* 53, no. 3: 348–357.

Rondinelli, Dennis A., and Joyce M. Zurcher. 1987. "Expanding Participation in Education: Feasibility of a Block Grant Pilot Project in Costa Rica." San Jose, Costa Rica: U.S. Agency for International Development.

Roth, Gabriel. 1987. *The Private Provision of Public Services in Developing Countries*. New York: Oxford University Press.

Samoff, Joel. 1987. "School Expansion in Tanzania: Private Initiatives and Public Policy," *Comparative Education Review* 31, no. 3 (August): 333–360.

Sarason, S. B. 1972. *The Culture of School and the Problem of Change*. Boston: Allyn and Bacon.

Schiefelbein, Ernesto. 1985. "Education Costs and Financing Policies in Latin America." *Education and Training*. Department Working Paper. Washington, D.C.: World Bank.

Searle, B. 1984. "General Operational Review of Textbooks." Washington, D.C.: World Bank.

Siffin, William J. 1976. "Two Decades of Public Administration in Developing Countries," *Public Administration Review* 36, no. 1: 61–71.

Simon, Herbert A. 1957. *Administrative Behavior*. 2d ed. New York: Macmillan.

Smith, W. E., F. T. Lethem, and B. A. Thoolen. 1980. *The Design of Organizations for Rural Development Projects: A Progress Report*. Staff Working Paper no. 375. Washington, D.C.: World Bank.

Steiner, Gary A. 1964. "The Creative Organization." *Stanford University Graduate School of Business Bulletin* 33: 12–16.

Tannenbaum, R., and W. Schmidt. 1958. "How to Choose a Leadership Pattern," *Harvard Business Review* 36.

Thompson, Victor A. 1961. *Modern Organization: A General Theory*. New York: Alfred A. Knopf.

United Nations Education, Social, and Cultural Organization (UNESCO). 1961. *Conference of African States on the Development of Education in Africa: Final Report*. Part 2. Paris: UNESCO.

———. 1984. *Statistical Yearbook*. New York: United Nations.

Verspoor, Adriaan M. 1985. *Project Management for Educational Change*. Discussion Paper no. EDT12. Washington, D.C.: Education and Training Department, World Bank.

———. 1988. *Pathways to Change: Improving the Quality of Education in Developing Countries*. Washington, D.C.: Education and Training Department, World Bank.

World Bank. 1971. *Education Sector Policy Paper*. Washington, D.C.: World Bank.

———. 1980. *Education Sector Working Paper*. Washington, D.C.: World Bank.

———. 1983a. *World Development Report, 1983*. Washington, D.C.: World Bank.

———. 1983b. *Ninth Annual Review of Project Performance Audit Results*. Washington, D.C.: World Bank.

———. 1986a. *Brazil: Finance of Primary Education*. Washington, D.C.: World Bank.

———. 1986b. *Financing Education in Developing Countries: An Exploration of Policy Options*. Washington, D.C.: World Bank.

Yin, R. K. 1979. *Changing Urban Bureaucracies: How New Projects Become Routinized*. Santa Monica, Calif.: Rand Corporation.

Zaltman, G., R. Duncan, and J. Holbek. 1973. *Innovations and Organizations*. New York: Wiley.

ABOUT THE AUTHORS

DENNIS A. RONDINELLI is senior policy analyst and principal scientist in the Office for International Programs at the Research Triangle Institute, Research Triangle Park, North Carolina. He is also a senior research associate with the Center for Competitiveness and Employment Growth of the Frank Hawkins Kenan Institute of Private Enterprise at the University of North Carolina at Chapel Hill. Dr. Rondinelli has published ten books and more than a hundred articles and research reports on comparative public administration, international development planning and administration, decentralization policy in developing countries, and comparative urbanization. He has served as an adviser to the World Bank, the U.S. Agency for International Development, and various United Nations specialized agencies. Before joining the Research Triangle Institute, Dr. Rondinelli taught at the University of Wisconsin at Milwaukee, Vanderbilt University, and the Maxwell School of Citizenship and Public Affairs at Syracuse University.

JOHN MIDDLETON is a policy analyst with the World Bank. He conducts policy studies in the area of human resource development, with an emphasis on management and training policies. For more than twenty years, Dr. Middleton has alternated between teaching, research, advisory, and management roles in international development. Before joining the World Bank, he was director of the School for International Training in Vermont, a planning adviser in the Indonesian Ministry of Education, and assistant director of the Communication Institute at the East-West Center in Honolulu. Dr. Middleton's research has focused on communication, educational planning and management, and applications of communication technology in education reform. He has authored or coauthored five texts used in training mid-career development managers.

ADRIAAN M. VERSPOOR is implementation adviser for the education and employment division of the World Bank. He has worked on economic and management issues related to educational development in the Third World since the early 1970s. At the World Bank he has played a leading role in applying the findings of research on development administration and innovation management to the design of World Bank-supported education lending operations. His earlier World Bank assignments included managerial and operational positions in the bank's West Africa Education

Division. Before joining the World Bank, Mr. Verspoor served as human resources planning adviser to the government of Malawi and was a lecturer on the economics of education at the UNESCO Regional Office for Africa in Dakar, Senegal. In his policy and advisory work Mr. Verspoor focuses on bridging the gap between management theory and education practice. His most recent publication is a monograph on the implementation of World Bank educational change programs in developing countries.

Index

Adaptive management strategy. *See* Management strategies
Argentina, 127
Auerhan, J. S., 21, 87, 120
Authority, 93–95, 117, 125, 142; negotiated, 103–104, 142

Backoff, Robert W., 151
Bangladesh, 6, 10, 99
Beeby, C. E., 12
Benin, 10
Benveniste, Guy, 76, 79, 83
Brazil, 7, 54, 127
Brinkerhoff, Derick W., 95
Bureaucracy: in education systems, 76; operations of, 75–76

Centralization: in education systems, 120–125
Chad, 6
Cheema, G. Shabbir, 155
Chile, 6, 127
"Christmas tree" projects, 11, 28
Clark, W., 20
Cohen, J. M., 55
Cohn, Elchanan, 14
Colombia, 30, 56, 64, 77, 100, 111, 122, 128
Command, 102–103
Communication, 95–100, 132
Contingency analysis, 2, 3, 17–18, 145, 147; process of, 25, 34–51; use of, 26, 32
Contingency theory, 2, 18, 22
Control, 105–108, 117, 124; ex-ante, 106, 107; ex-post, 107, 108
Coombs, Philip H., 6, 120, 127
Coordination, 100–105, 132, 134, 143
Coronis, Susan, 63, 93
Costa Rica, 77, 82, 83, 111, 131, 142, 143, 162; characteristics of education system in, 7, 121, 124, 125, 126, 135
Cultural conditions. *See* Cultural values
Cultural values, 41, 46, 58–62
Curriculum reform, 9, 73, 81

Decentralization, 100, 125–131, 132, 155
Deconcentration of administrative structure, 77, 78, 126–127
Delegation, 127
"Demandingness," 69, 156
Demsky, Terry, 63, 91, 92, 93
Design. *See* Development projects
Development administration, 19
Development projects: "blueprint" approach, 20, 21; complexity of, 28–29; design of, 20, 156–167; experimental, 157; feasibility of, 24, 29; "people-centered," 2, 16, 20, 23–31, 95
Devolution, 127–128
Dominican Republic, 56, 57
Downs, Anthony, 77
Drucker, Peter F., 143, 144

Education: nonformal, 99, 101, 119, 121, 127, 132; quality of, 5, 6; vocational, 56, 93, 101, 127
Education reforms: characteristics of, 16; demand for, 29; political motivations for, 4–6. *See also* Curriculum reform
Education systems: characteristics of, 21
El Salvador, 10
Enrollments in schools, 5

Environment: definition of, 33, 53; organizational, 61–66, 78; political, 55–58; socioeconomic, 53–55
Environmental conditions: assessing uncertainty in, 37–39, 53–68, 77, 79, 165–167; complexity of, 66–68; in contingency analysis, 25; stability of, 66–68, 74
Ethiopia, 109, 130, 163
Evaluation, 32, 108–110

Facilitation, 104–105
Feasibility analysis, 47–49, 54, 145
Fuller, Bruce, 6, 12

Goldstein, Howard, 20
Goodman, L. W., 88
Gorman, K. S., 88
Guatemala, 127

Haddad, Wadi D., 63, 88, 91, 92, 93
Haiti, 10, 98, 103, 162, 163
Hanson, E. Mark, 58, 64, 76, 111, 115, 122
Harbison, Frederick H., 4
Havelock, R. G., 10, 11, 13, 23, 24, 58, 93, 109, 110, 158, 160
Heaver, Richard, 55, 57
Herzberg, Frederick, 115
Hofstede, Geert, 59
Honduras, 87
House, Ernest, 14
Huberman, A. M., 10, 11, 13, 23, 24, 58, 93, 109, 110, 158, 160

Implementation: of education projects, 11; planning for, 49–50
Implementation action plans, 145–168
Incentives, 103, 112, 113–116, 154
India, 6
Indonesia, 116
Innovation, 13, 14, 164
Innovativeness in education projects, 25, 39–40, 46–47, 68–72, 79, 82, 148
Interagency coordinating committees, 141–143
Interviews, 49–50
Iran, 6
Israel, Arturo, 55, 57
Ivory Coast, 8

Johnston, B., 20
Jordan, 63, 93

Klauss, Rudi, 95
Koranic education, 64
Korten, David C., 107
Korten, Frances F., 114

Leadership, 93–95, 116
Lethem, F. T., 66
Lippitt, Gordon L., 150

Madagascar, 6, 120
Majone, G., 20
Mali, 98
Management: capacity, 3, 14–15, 42–47, 145, 148, 159, 160, 161, 164; definition of, 33; processes, 34, 41, 44–45, 87, 88, 152–153; requirements, 3, 36–42, 145, 148
Management assessment profile (MAP), 145–147, 148
Management strategies, 12–13, 22, 33, 46; adaptive, 26, 40, 78–82, 92, 94, 108, 112, 114, 153; factors affecting selection of, 71, 73–85; identification of, 40–42; mechanistic, 26, 40, 74–77, 91, 94, 96, 103, 115, 149, 153; open-mechanistic, 40, 77–78, 134; professional-adaptive, 40, 82–84, 134
March, James G., 78
Mauritania, 63, 64
Mechanistic management strategy. *See* Management strategies
Mexico, 65, 77, 82, 127, 128, 131, 136, 140, 161
Middleton, John, 8, 95

Monitoring, 32, 108–110
Morocco, 29, 30

Nadler, D. A., 49
Nellis, John R., 155
Niger, 8
Nonformal education, 99, 101, 119, 121, 127, 132
Noor, Abdun, 15
Nuclear schools, 116, 127
Nutt, Paul C., 151

Organizational structures: assessment of, 42–44; definition, 34; divisional, 133–136; functional, 132–133; hybrid, 139–143; matrix, 137–139; organic, 80; selection of, 41–42, 119–144, 154–156
Organization development, 49, 147–156

Pakistan, 10, 31, 114
Paraguay, 116, 127
Participation, 32, 99
Paul, Samuel, 53, 65, 161
Personnel management, 110–113, 114
Peru, 6, 77, 78, 88, 126, 131
Philippines, 11, 88
Plank, David N., 54
Planning, 89–93, 117, 132; incremental, 91, 92, 152; operational, 89; strategic, 89
Political environment: assessment of, 55–57
Power distance, 59
Power setting, 61, 63
Predictability of project results, 68–69, 156, 157
Privatization, 128–129
Project implementation units (PIU), 31, 65, 136–137
Purkey, S. C., 14

Questionnaires, 50

Rewards. *See* Incentives
Rojas, Yolanda, 111, 124, 125, 131, 135, 143, 162
Role differentiation, 60
Rondinelli, Dennis A., 155
Rossmiller, Richard A., 14

Samoff, Joel, 5, 123
Searle, B., 88
Senegal, 80, 81
Simon, Herbert A., 78
Smith, M. S., 14
Smith, W. E., 66
Staffing. *See* Personnel management
Standard operating procedures, 1
Student achievement: factors influencing, 12
Swaziland, 8

Tanzania, 123
Tasks, 33, 74; defining clusters of, 36
Textbook improvement project, 88
Thailand, 6, 77, 81, 91, 101, 119, 129, 132
Thompson, Victor A., 76
Thoolen, B. A., 66

Uncertainty, environmental. *See* Environmental conditions
United Nations, 15, 58, 93, 109, 158
United Nations Children's Fund (UNICEF), 9
United Nations Development Programme (UNDP), 9
United Nations Economic, Scientific, and Cultural Organization (UNESCO), 4, 9

Values: effect of changes in management strategy on, 153–154. *See also* Cultural values
Venezuela, 58, 76, 77, 111, 115
Verspoor, Adriaan M., 8

Vocational education, 56, 93, 101, 127

Wildavsky, A., 20
World Bank, 3, 4, 6, 8, 9, 10, 15, 16, 21, 27, 28, 30, 36, 54, 56, 63, 79, 80, 87, 88, 95, 99, 100, 101, 109, 115, 128, 163

Yemen Arab Republic, 130

Zambia, 8, 120

Library of Congress Cataloging-in-Publication Data
Rondinelli, Dennis A.
Planning education reforms in developing countries :
the contingency approach / Dennis A. Rondinelli,
John Middleton, and Adriaan M. Verspoor.
p. cm. — (Duke Press policy studies)
Bibliography: p.
ISBN 0-8223-0966-1. — ISBN 0-8223-0974-2 (pbk.)
1. Educational planning—Developing countries.
2. Education—Developing countries. I. Middleton,
John, 1943– . II. Verspoor, Adriaan, 1942– .
III. Title. IV. Series.
LC2605.R66 1990
379.1'54'091724—dc20 89-36234 CIP

Planning Education Reforms in Developing Countries offers a basic approach applicable to a wide variety of development programs in both developing countries and educationally disadvantaged communities in the United States and Europe. It is the first book to apply contingency theory to education reform planning for project management and policy administration.

"Provides a comprehensive application of contingency theory to an important sector in developing countries, one that has to date rarely benefited from state-of-the-art management approaches."—Marcus D. Ingle, Director, International Development Management Center, University of Maryland

"*Planning Education Reforms in Developing Countries* provides an understanding of how managers can cope in concrete situations involving educational reform in less developed countries. This is presented through an innovative and elaborate set of frameworks for understanding how the policy process works, how educational reform works, and how the analytic challenges should be sorted out. It is to the credit of the authors that they introduce these frameworks through the analysis of specific challenges of educational reform, rather than discussing them in a vacuum."—William Ascher, Co-director, Center for International Development Research, Duke University

Duke Press Policy Studies
ISBN 0-8223-0974-2